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Appendix G INTERIM REPORT ON SIGNIFICANT FIRES IN WTC 1, 2, AND 7 PRIOR TO SEPTEMBER 11, 2001

Fires occurred in World Trade Center (WTC) 1, 2, and 7 prior to September 11, 2001. This appendix documents the facts of significant fires in the building after first occupancy as they relate to the performance of the automatic sprinkler, manual suppression, fire detection, and smoke purge systems. The ultimate goal of this review was to identify from New York City Fire Department (FDNY) records significant but not well known fires for further study.

G.1 BACKGROUND

The fire protection engineering department of the Port Authority of New York and New Jersey (PANYNJ) maintained records of all significant fire events in the WTC buildings. These records were lost in the collapse of the towers.

Two significant fire events involving WTC 1 are well known. On February 14, 1975, a fire started on the 11th floor of WTC 1. Workers reported the fire to WTC police headquarters. When police reached the fire floor, they reported a serious fire and ordered the heating, ventilating, and air conditioning (HVAC) system be placed into the smoke purge mode. Fire spread through unprotected floor openings in utility closets. Fire damage occurred on floor 10 through floor 19. Approximately 800 m² (9,000 ft²) of the floor 11 contents were destroyed or damaged. At that time, sprinklers had not been installed in the office spaces. However, fire barriers divided the floor into quadrants. The fire on floor 11 was confined to the southeast quadrant. Fire damage on other floors was confined to the utility closets. The fire was extinguished by FDNY. More details about this fire incident can be found in Powers (1975), Lathrop (1975), and a report that is being prepared for the National Institute of Standards and Technology (NIST) by Hughes Associates.

At 12:18 PM on February 26, 1993, a bomb exploded in an underground parking garage of the WTC complex. The explosion occurred on the B2 level in the area of the garage under WTC 3 and adjacent to WTC 1. The explosion resulted in a loss of normal electric power in WTC 1 and WTC 2. HVAC systems shut down. Smoke spread throughout WTC 1 and to a lesser extent in WTC 2. More details about this fire can be found in Isner and Klein (1993a, 1993b). The only historic record of smaller fire incidents in WTC 1, 2, and 7 known to this investigation are the fire reports and fire investigation reports prepared by the FDNY. These reports were provided to NIST by FDNY for use in this investigation.

G.2 FDNY FIRE REPORTS AND FIRE INVESTIGATION REPORTS

The FDNY released 397 Bureau of Operations Fire Reports and 112 Bureau of Fire Investigation Records (Fire Marshals' Reports) which served as the basis for a summary of the fire history in the WTC 1, 2, and 7. NIST obtained reports of fires for the period of 1970–2001 and fire investigation records between 1977 and 2001 for WTC 1, 2, and 7, which in total, consisted of over 500 documents on which to report.

These records included all responses to fires in buildings 1, 2, and 7 by the FDNY. All of these records consist of standardized forms that may be supplemented with other materials. Many were for minor fire events, such as fires that were extinguished by occupants before FDNY arrival. These were not of interest for this investigation. The records of significant fires were identified.

Significant fire incidents were those that exercised the fire suppression systems, specifically multiple sprinklers or multiple standpipes (with or without the activation of at least one sprinkler). These fires will be discussed individually, organized by the building in which they occurred. In addition to these fires, generalized facts relating to those fires involving the use of one standpipe line and one sprinkler and the use of one standpipe line will be provided throughout this report. As an aside, the majority of fire records for significant fires documented the performance of the detectors and sprinkler systems, but almost all reports lacked information about the performance of the smoke purge system.

G.2.1 Fire Record Forms

Depending upon the type and date of the incident, a specific fire report form was used by the FDNY to document the incident. For each type of emergency responded to by the FDNY, responders either completed a form that would describe a structural fire (BF–24) or a form that would describe any other type of emergency (BF–25), such as a nonstructural fire, transportation fire, and/or any other non-fire emergency. For this historical summary, only those events logged and organized under the structural fire form, 345 documents total, were of interest and used. A structural fire form is a one-page document (unless additional information is recorded on separate sheets) that gives valuable information about the fire event on various subjects, including:

- Alarm–the date and time of the received alarm
- Injuries and casualties—the numbers of each for the incident
- Extinguishment-details of the sprinkler and standpipe performance
- Ignition—information on the equipment involved in ignition, the form of the ignition source, the material type and form that was ignited, and the ignition factor (cause)
- Structure—information on the class of construction, the use of the building, and its status (vacant, occupied, under construction, etc.)
- Fire origin—the fire location and classification
- Fire extension—the means of fire extension and number of buildings/vehicles involved
- Damage-information on the damage done by flame, smoke, and water
- Detectors—the type, power source and performance of the detectors in the fire area

Each subject of the incident is given a set of codes or numbers that correspond to any incident, and in order to read the fire records successfully, an understanding of the codes is necessary (see

Attachments G-A.1, G-A.2 and G-A.3). For the nonstructural B-25 record forms, the only fire related subjects included are the injury and casualty numbers, ignition, and structure information.

Depending upon the date of the fire incident, certain information is lacking from the structural fire form. Before 1980, a different record form for structural fire incidents was used which left out the following subjects: fire extension, damage, detectors, and portions of the ignition data. Because of this, detection data are not available for the majority of the fires occurring before 1980.

G.2.2 Overview of Fire Incidents 1970–2001 from FDNY Records

Table G–1 contains the categorization of all structural fire incidents contained in the FDNY records for WTC buildings 1, 2, and 7 available to this investigation. The table contains information on the category of fire incident (whether or not the detection and/or sprinkler systems activated), the time period over which the fires occurred, the numbers of records in that category, and a descriptive statement about the category.

Table G-1. Categorization of WTC 1, 2, and 7 fires from FDNY records.

WTC 1					
Category	Dates	Number	Generalization of Incidents		
No detection, no sprinkler	1980–2001	66	Unattended food/appliances, overheated elevator equipment, discarded material, welding operations, electrical failure and suspicious fires		
No detection information and no sprinklers	1970–1979	79	Trash can fires, discarded material, food on stove, electrical failure, overheated equipment		
Detection, no sprinklers	1980–2000	57	Unattended food/appliances, overheated elevator equipment, discarded material, welding operations, electrical failure		
[Detection] and	1977–1999	18			
sprinklers			Suspicious, electrical failure, discarded material		
		WTC			
Category	Dates	Number	Generalization of Incidents		
No detection, no sprinkler	1980–1999	37	Discarded material, welding too close, overheated equipment, suspicious, elevator motor		
No detection information and no sprinklers	1975–1979	40	Discarded material, fire in office furniture, trash can fires		
Detection, no sprinklers	1981–1999	40	Food on stove, small elevator fire, electrical failure, suspicious, overheated equipment		
[Detection] and sprinklers	1977–2000	5	Mechanical failure, suspicious		
		WTC	7		
Category	Dates	Number	Generalization of Incidents		
No detection, no sprinkler	2000	1	Trash can fire/discarded material		
Detection, no sprinklers	1990	1	Electrical switch on floor – explosion		
[Detection] and sprinklers	1988	1	Suspicious		

All FDNY records provided to NIST, unless the records were not readable, contained relevant information about the type and performance of the suppression system. Because of this, reports of incidents in which the sprinkler system activated can range from 1970 to 2001. When the table lists "[detection]" in brackets, this is meant to symbolize that either detection was present or no information on detector performance was included on the form (as is the case with the older records). An attempt was made to compare all investigation records with the fire reports, especially those which activated the suppression system. Looking at the records in Table G–1, it is clear that only 24 fires activated the sprinkler system from 1970–2001 from all three buildings. Many of the other structural fires without sprinkler activation were labeled as suspicious, trash can fires, electrical failures, unattended food/appliances, or overheated equipment.

In order to report on significant structural fires occurring in WTC 1, 2, and 7, the FDNY records had to be reviewed for those incidents that activated sprinklers, detectors, or were extinguished by hose line and those smaller fires that self-extinguished or could be extinguished using a fire extinguisher. The structural fire incidents without detection information (before 1980), had to be reviewed to locate any fires that activated the sprinkler system.

The retrofit installation of sprinklers into WTC buildings 1 and 2 was accomplished in two phases. During the first phase in 1976, sprinkler risers/mains were installed throughout WTC 1 and WTC 2. Sprinklers were installed to protect corridors, storage rooms, lobbies, and certain tenant/PANYNJ spaces. In the second phase of the retrofit from 1983 to 2001, sprinklers were installed in all remaining places in the complex (PACO 2002; shown in Attachment G–B). Prior to the retrofit only the sub-grade areas and selected hazard areas were protected by automatic sprinklers. This retrofit proceeded throughout the buildings as much as practical when other renovations of the office spaces were underway, such as when change of tenants occurred.

After the installation of the sprinkler risers in 1976, tenants had the option of providing sprinklers or compartmentation for fire protection in compliance with Local Law 5. It was therefore possible that during the period of time when retrofit installation of sprinklers was under way, a fire that occurred may or may not have been in an area protected by automatic sprinklers.

The forms used by the FDNY after 1987 give a detailed description of the event and whether or not a system was present at the time of the fire; however, a fire recorded before 1987 will give data only on the number of sprinklers opened. Because of this, an effort was made to look through all reports, especially those that mentioned detection performance, in order to identify fires involving the use of standpipe lines by the FDNY as an alternate indication of a significant fire.

The next section of the report will highlight significant fires occurring in WTC 1, 2, and 7. The significant fires will be described individually by WTC building, and organized by the date on which they occurred in the building. In addition to these significant fires, (1) the fires that activated one sprinkler head and involved the use of one standpipe and (2) the fires that involved the use of only one standpipe, due to the number of incidents, will be generalized as to the nature of the incidents and the procedures followed by the FDNY.

G.2.3 Fire Incidents Occurring in WTC 1

After reviewing all the FDNY records of fire incidents in WTC building 1 since 1970, the significant fires were selected. There were 12 significant fires found for WTC 1, and the fire reports are included in Attachment G–A.4. Table G–2 provides a summary of the fire incident information from FDNY records, which is followed by individual paragraphs about each incident.

Table G–2. Significant fires in WTC 1 extinguished by sprinklers and/or multiple standpipe lines.

Significant	Incident		# Sprinklers	# Standpipes		Material
Fire	Date	Fire Location	Activated	# Standpipes Used	Cause of Fire	Ignited
1	9/9/77	B-6 level storage room	2	0	None listed	Not listed
2	9/23/77	Dumpster on B-4 level	2	0	Not classified	Trash/waste
3	10/16/81	19th floor office area	-	2	Discarded material	Furniture
4	12/23/83	2 dumpsters on B-4 level	2	1	Suspicious	Trash/waste
5	1/27/85	Office space on mezzanine level (Floor 2)	2	1	Incendiary	Trash/waste
6	9/10/85	Garbage dumpster in service elevator lobby on floor 43	2	1	Suspicious	Trash/waste
7	11/1/85	Storage closet on B-4 level	3	1	Suspicious	Supplies/ stock
8	6/7/86	Dumpster fire on floor 106, compactor room on floor 107	2	1	None listed	Trash/waste
9	9/30/91	Office on B-4 level	≥1	2	Discarded material	Trash/waste
10	11/19/91	Electrical closet on floor 93	0	2	Short circuit	Electrical wire or cable insulation
11	7/23/92	Level B-5 at the power distribution panel	0	2	Electrical failure	Electrical wire or cable insulation
12	11/10/99	Computer room on floor 104	3	≥1	None listed	Plastics, electronic equip

Key: \geq symbol denotes that at least one of the units of the suppression system was used (and not specifically identified by the fire report); - indicates that the report acknowledges 0 sprinklers open; however, due to the date of the fire, the space may not have had a sprinkler system installed.

Significant Fire #1

On September 9, 1977, at 11:04 p.m., the FDNY received an alarm for a fire in the B-6 level storage room at the address of WTC 1. The fire activated two sprinklers, and was noted to be extinguished before the FDNY's arrival.

Significant Fire #2

Another fire occurred on September 23, 1977, at 11:48 p.m., in a dumpster on the B-4 level of WTC 1. This fire also activated two sprinklers, and the FDNY noted that the fire had been extinguished prior to their arrival.

In both cases, no injuries or casualties resulted from these fires, and the damage was confined to the area of origin.

Significant Fire #3

Six years later, on October 16, 1981, at 7:12 p.m., a fire occurred on floor 19 of WTC 1. The FDNY noted that they used two standpipe lines to extinguish the fire and that one person was evacuated from the scene. Again, the fire report notes that no sprinklers opened, but does not note whether or not sprinklers were present at the time of the fire. Given the date of the incident, sprinklers are not expected to be located on floor 19. The fire was caused by discarded material and involved furniture in an office area of the floor.

Significant Fire #4

Six years later on December 23, 1983, at 2:50 a.m., the FDNY responded to an alarm of fire and heavy smoke conditions on the B-4 level of WTC 1. The FDNY found two dumpsters fully involved in separate locations on the same floor and noted that the two activated sprinklers extinguished a major portion of the fire. The FDNY extinguished the rest of the flames by stretching hose from the standpipe system. Again, no injuries or casualties resulted from this fire. The cause noted on the report was suspicious and the damage was confined to the origin of the fire.

Significant Fire #5

On January 27, 1985, at 8:53 p.m., the FDNY was called for a fire located in an unoccupied office on the mezzanine level of WTC 1. Two sprinklers contained the incendiary (involving arson) fire consuming trash paper/waste. When the FDNY arrived, they extinguished the remaining fire with one standpipe line. Building and content damage was confined to less than 15 percent of the space. Also, no injuries or casualties were reported.

Significant Fire #6

Eight months later on September 10, 1985, at 4:05 p.m., the Port Authority Police informed the FDNY on arrival of a sprinkler flow and smoke condition on floor 43. A medium smoke condition was report by the FDNY on floor 43, where a fire was extinguished by two sprinklers. The fire report notes the use of one standpipe line; however, this was used during the overhaul process. This fire originated suspiciously

in a garbage dumpster in a service elevator lobby. There was no building or content damage as well as no injuries or casualties reported.

Significant Fire #7

On November 1, 1985, at 4:05 a.m., the FDNY was called for another suspicious fire producing heavy smoke on the B-4 level under WTC 1 and WTC 2. This fire occurred in a storage closet of the men's bathroom, and the FDNY noted that three sprinklers activated to keep the fire under control until their arrival. Upon arrival, the FDNY extinguished the remaining fire in the closet area with one standpipe line. Again, the damage was noted to be confined to the area of origin.

Significant Fire #8

Less than a year later, on June 7, 1986, at 9:49 a.m., the FDNY received an alarm for a heavy smoke condition on floor 110. For this call, fires were burning in two separate places; a garbage dumpster on floor 106 and the compactor room on floor 107. Sprinklers were noted in operation in both locations and seemed to control the fires, until the FDNY could complete extinguishment with one standpipe line on floor 106. There was no report of injuries or casualties for the previous two fires.

Significant Fire #9

An additional fire occurred in WTC 1 where multiple standpipe lines were used along with the activation of the sprinkler system. This fire occurred on September 30, 1991, at 6:32 p.m., in an office on the B4 level. The fire report noted that the sprinkler system operated; however, there is no mention of how many sprinklers or even their activation in the Operations/Comments section of the report. Two 1 3/4 in. or larger hose lines were used by the FDNY to extinguish this fire. The cause of the fire was abandoned material (cigarette) igniting boxes/carton material in an office. The fire damage was confined to the area of origin and smoke damage was confined to the floor. There was one uniformed officer injured and no civilian injuries or casualties.

Significant Fire #10

A fire occurred on November 19, 1991, at 6:27 pm., and two 2 1/2 in. standpipe hose lines were used by the FDNY. The FDNY responded to WTC 1 for this fire due to a report of fire and smoke condition in electrical closets on possibly four floors (floors 93–96) and an alarm transmitted from floors 93–98. According to the fire report, the sprinklers were in service, but did not operate for this fire. The noted cause of this fire was a short circuit and the material that was ignited was electrical wire or cable insulation. The fire and smoke damage was confined to its area of origin (electrical closet). Two occupants were removed from stalled elevators during this incident, and occupants were evacuated from the scene, although an exact number is not given. Also, two occupants were injured and required first aid.

Significant Fire #11

The FDNY responded to WTC 1 on July 23, 1992, at 10:02 p.m., due to a transformer fire on the 5th sub basement level. Firefighters found a fire situation in a large power distribution panel, where a firefighter was knocked unconscious by a shock blast from the panel. Similar to the fire in November of 1991, two 2-1/2 in. standpipe hose lines were used by the FDNY on this fire. The cause of the fire was an electrical

failure and the material ignited was electrical wire or cable insulation. No appreciable damage is noted. As mentioned earlier, one firefighter was injured as well as three civilians.

Significant Fire #12

The final fire associated with WTC 1 was one that occurred on November 10, 1999, at 11:01 p.m., in a computer room on floor 104. The FDNY noted that the fire was "knocked down" by three sprinklers when they arrived and they completed extinguishment with a line extended from the standpipe. The flame damage was confined to the area of origin and computer equipment was involved in fueling the fire. There was one injury and no casualties reported in the FDNY record for this fire.

Table G–2 presents the 12 significant fires in WTC 1. Five of the 12 fires occurred on the basement levels and two occurred on the upper levels (above floor 100). The causes of these significant fires include suspicious, discarded materials, and electrical failures.

G.2.4 Fire Incidents Occurring in WTC 2

Table G–3 presents the significant fire occurring in WTC 2. There were three significant fires found for WTC 2, and the fire reports are included in Attachment G–A.5. Table G–3 provides a summary of the fire incident information from FDNY records, which is followed by individual paragraphs about each incident.

Table G–3. Significant fires in WTC 2 extinguished by sprinklers and/or multiple standpipe lines.

Significant Fire	Incident Date	Fire Location	# Sprinklers Activated	# Standpipes Used	Cause of Fire	Material Ignited
1	5/19/75	Floor 32	-	3	Incendiary	Trash/waste
2	4/12/77	Duct work over grill in restaurant on floor 107	2	0	None listed	Duct work
3	3/22/93	Fan motor room on floor 108	2	0	Mechanical failure	Not classified

⁻ Indicates that the report acknowledges 0 sprinklers open, however due the date of the fire, the space may not have had a sprinkler system installed.

Significant Fire #1

A fire occurred on May 19, 1975, at 9:38 p.m., on floor 32 of WTC 2. The FDNY noted that they used three standpipe lines to extinguish the fire and that the Port Authority reported occupants trapped on floors 31 and 32. The fire report notes that no sprinklers opened, but does not note whether or not sprinklers were present at the time of the fire. Given the date of the incident, sprinklers are not expected to be located on floors 31 and 32. The fire was labeled as incendiary and involved trash/waste. The FDNY stated that the fire involved the core area of the floor and was confined to that area. Over 20 people (civilians and uniformed personnel) were injured by this incident.

Significant Fire #2

On April 4, 1977, at 1:15 p.m., the FDNY was called to WTC 2 for a fire in the duct work over the grills in a restaurant on floor 107. The FDNY record on this fire noted that the fire was extinguished prior to its arrival. The damage was confined to the area of origin, and the fire caused no injuries or casualties.

Significant Fire #3

The second fire occurred on March 22, 1993, at 8:39 a.m., and caused a smoke condition on floor 108. The fire activated two sprinklers due to an overheated bearing in a fan motor room on floor 108. The damage to the area did not exceed 15 percent of the space, and there were no injuries or casualties reported.

Table G–3 presents the three significant fires in WTC 2. No fires were discovered in WTC 2 where multiple sprinklers or standpipes were used with another suppression system. Two of the three fires occurred on the upper levels (above floor 100) and the other occurred on floor 32. The causes of these significant fires included incendiary and mechanical failures.

G.2.5 Additional Fires Involving the Deployment of Standpipe Lines in WTC 1 and 2

The fires described in this section (31 in total) involve the use of one standpipe, with and without the activation of one sprinkler for WTC 1 and WTC 2. Four of the 31 reports describe fires that were extinguished with one sprinkler and one standpipe line (see Attachment G–A.6.1). Three of these fires were located in WTC 1 between the years of 1986–1991 and the other in WTC 2 in 1981. Two of these fires occurred in basement levels, one occurred on floor 106 of WTC 1, and the last on floor 5 in WTC 1. In some of the fire reports, the FDNY noted that the sprinkler controlled the fire, and the standpipe was used to actually extinguish the remaining fire. Half of the fires were labeled as incendiary/suspicious, one was an electrical failure, and the last was unknown.

In addition, 27 of the 31 fire reports describe fires that were extinguished using one standpipe line (see Attachment G–A.6.2). Twenty of these fires occurred in WTC 1 and the other seven occurred in WTC 2. A majority of these fires (19) are labeled as incendiary/suspicious or unknown, while the other causes of the fires are attributed to short circuits, abandoned material/cigarette, welding close to combustibles, and a mechanical failure. The dates of occurrence for these fires range from 1973–1999, with a majority (23) occurring between the years of 1973–1985. These fire incidents did not result in any casualties, but five civilians and one uniformed officer were injured.

Two of the 27 fires involved a 300 person (April 19, 1980) and a 1,500 person (April 17, 1981) evacuation. These will be described in further detail. On April 19, 1980, at 2:06 p.m., the FDNY received reports of an activated smoke detector in the return air duct on floor 106 of WTC 1. The FDNY also received reports of heavy smoke on floor 106, light smoke on floor 109, and heavy odor of smoke in stairways A and B. The report notes that while only one standpipe was used, approximately 300 people were evacuated from the Windows on the World restaurant on floor 107 via stairway C (which was clear of smoke). The fire cause was labeled as abandoned or discarded material and involved plastic material. This fire did not cause any injuries or casualties.

On April 17, 1981, at 9:18 a.m., the FDNY was informed of a fire on floor 7 and a smoke condition on floors 7 through 11 of WTC 1. The FDNY hooked up one standpipe and extinguished the fire located in an air conditioning unit in the "MER" room on floor 7. The cause of this fire was labeled as a mechanical failure. The fire report notes that the Port Authority personnel reported an evacuation of approximately 1,500 people from floors 9 through 23. However, no injuries or casualties were reported from this fire.

G.2.6 Fire Incidents Occurring in WTC 7.

Table G–4 presents the significant fire occurring in WTC 7. There was one significant fire found for WTC 7, and the fire report is included in attachment G–A.7. Table 4 provides a summary of the fire incident information from FDNY records, which is followed by an individual paragraph on the incident.

Table G-4. Significant fires in WTC 7 extinguished by sprinklers and/or multiple standpipe lines.

Signifi Fir	Incident Date	Fire Location	# Sprinklers Activated	# Standpipes Used	Cause of Fire	Material Ignited
1	5/20/88	Construction shanties on floor 3	Multiple, # not listed	1	Suspicious	Shanties

Significant Fire #1

In WTC 7, a fire occurred on May 20, 1988, at 12:38 a.m., in the construction shanties on floor 3. Although the fire report does not specifically note the number of sprinklers that activated, the operations notes state that Ladder Truck 10 found the sprinklers (noting more than one) in operation and shut them down. The FDNY had to complete the extinguishment by stretching a line from the standpipe to the fire source. This fire is noted by the report as being suspicious in nature and the flame damage was confined to the area of origin.

It is possible that the fire incidents that were not specifically highlighted, especially those in the areas without sprinklers, involved other methods of extinguishment before FDNY arrival, such as a WTC houseline (pre-connected standpipe hose), hand extinguisher, or bucket of water, as noted on some of the FDNY reports. All other fires, the majority, included in other categories were either self-extinguished, extinguished prior to FDNY arrival (by staff, etc.), or a hand extinguisher was used by the FDNY.

G.3 SUMMARY

In summary, 16 significant fires occurred in WTC 1, 2, and 7, with 12 occurring in WTC 1, three in WTC 2, and one in WTC 7. In addition to these, 31 fires occurred in WTC 1 and WTC 2, which involved the use of one standpipe (with or without the activation of one sprinkler). Of these additional 31 fires, 23 occurred in WTC 1 and eight occurred in WTC 2. The following paragraphs will summarize findings from the 16 significant fires that occurred in all three buildings.

After reviewing the 16 significant fires, trends developed relating to the time of day that the fires occurred. Overall, 12 of the 16 fires occurred between the hours of 6 p.m. and 4 a.m. The fires that occurred during office hours (between 7 a.m. and 6 p.m.) included a dumpster fire in the floor 43 elevator lobby (WTC 1), a dumpster fire on floor 106 (WTC 1), a kitchen fire on floor 107 (WTC 2), and a bearing overheating in the fan motor room on floor 108 (WTC 2). Almost all of the incendiary (arson) and

suspicious fires (5 out of 6 fires) and unclassified or unlisted fires (4 out of 5 fires) occurred after business hours (before 7 a.m. and after 6 p.m.).

In addition to the time of day of the fire, trends in the cause of the fire and the materials involved in the fire can be highlighted. Of the 16 fires and their causes, five were labeled as unlisted or unclassified, six as suspicious or incendiary, two as discarded material, and three as an electrical failure or mechanical failure. For the material involved in the fire, eight reports noted trash, waste, and supplies; two reported not listed or not classified; one reported furniture; three reported electrical equipment; one reported duct work; and one reported shanties were the material involved in the fire.

Lastly, the location of the fires throughout the buildings was of interest. Of the 16 fires, four fires were concentrated above floor 100 or and six fires were located in the basement. The others (6 fires) were spread throughout the rest of the building.

G.4 ATTACHMENTS TO THIS FIRE HISTORY

Attachments G–A.1 through G–A.7 are included as a supplement to this report. The first three sections, G–A.1 through G–A.3 are explanations of the numeric codes used in the fire reports by the FDNY. Attachment G–A.1 is included to explain the codes for the fire reports produced prior to and including 1980, Attachment G–A.2 is included to explain the fire reports produced from 1981 to May 31, 1987, and Attachment G–A.3 is included to explain the fire reports produced from June 1, 1987, to the present. The report code explanations are divided into the same sections as the fire report and give short descriptions for the numbers used in the fire report under each section. For example, if the ignition factor for a fire occurring in 1990 was given a number code of 54, the reader can find that the cause of the fire was a "short circuit, ground fault."

Attachments G–A.4 through G–A.7 include the actual fire reports produced by the FDNY on the significant fires highlighted in the sections above. The reader can use Attachments G–A.1 through G–A.3 (depending upon the date of the fire) to read the fire reports in more detail than what is provided in this fire history report.

G.5 CONCLUSIONS

From the information contained in FDNY fire reports and fire investigation records provided to NIST, 47 fires occurred in WTC building 1, 2, and 7 that were of sufficient size and duration to activate multiple sprinklers or were estimated by NIST to be capable of doing so, over the time period the buildings were occupied. This total does not include the major 1975 office fire in WTC 1 or the 1993 bombing.

The records indicate that in areas protected by automatic sprinklers, no fire activated more than 3 sprinklers. Three sprinklers would provide coverage for a floor area of approximately 63 m^2 (675 ft^2). This area is much smaller than the 800 m^2 (9,000 ft^2) damaged by the 1975 fire in an office space unprotected with automatic sprinklers.

Many of the fires that occurred were recorded as suspicious or unknown in cause, occurred during offpeak work hours, and involved materials such as trash or paper-based supplies. In cases where sprinklers were activated, the FDNY records indicated that the sprinklers either extinguished the fire completely or aided in controlling the spread.

G.6 REFERENCES

- Isner, M. S., and T. J. Klem. 1993a. Explosion and fire disrupt World Trade Center. *NFPA Journal*. National Fire Protection Association. 91-104.
- Isner, M. S., and T. J. Klem. 1993b. World Trade Center Explosion and Fire, New York, New York, February 26, 1993. Fire Investigation Report. National Fire Protection Association. Quincy, MA.
- PACO Group. 2002. World Trade Center General Description of All Building Systems and the Capital Program. August.
- Powers, W. R. 1975. *One World Trade Center Fire New York, N.Y., February 13, 1975.* National Fire Protection Association. Boston, MA. 1-15.

Attachment G-A.1

Explanation of Numeric Codes Used on Fire and Emergency Reports - Prior to 1980

		RESI	DENTIAL	34	Living Room -
COM	MERCIAL	80	Anartment Hatal Pag	35	Lobby
COM	MERCIAL	81	Apartment Hotel "A"	36	Machinery Room
01	Bank	82	Apartment House "A" Boarding House, Room	37	Office Area
.02	Brewery	-	ing House "B"	. 38	Operating Laboratory
03	Coal Pocket	83	Convent, Rectory,		Area
04	Department Store	•••	Monastery, etc.	39	Partition
05	Electric Power Plant			40	Porch
06	Pactory: Multi occu-	84	Dormitory-School	· 41 42	Projection Booth
	pancy	85	Club, Lodge Hotel "B"	43	Recreation Area
07	Factory: Single	86	Lodging House "B"		Roof
	Occupancy	87		44	Sales Showroom Dis-
08	Foundry	88	Motel Pvt. Dwelling: 1 Family	45	play Area Shaft-Duct, Pipe
09	Freight Depot	89	Two Family	46	Shaft-Dumbwaiter
10	Garage: Non-Storage	90	Tenement: New Law "A"	47	Shaft-Elevator
11	" Storage	91	" Old Law "A"	48	Shaft-Exterior Light
12	Gas Works	92	Converted Dwelling "A"	49	Shaft-Interior Light
13	Lumber Yard	99.	Other Residential	50	Shaft-Vent
14	Hotor Vehicle Repair Shop		DING STATUS	51	Shipping Receiving Loading Area
15	Office Building	1	Occupied	52	Stage
16	Oil Selling Station	ž	Partly Occupied,	53	Stairway
17	Oil Storage Plant	-	Good Condition	54	Storage Room Area
18	Pier, Wharve, Dock,	3	Partly Occpuied, De-	55	Vacant-Room, Apart-
	Bulkhead Building	•	teriorating		ment or area
19	Restaurant, Diner	4	Vacant	56	Work Area Workroom
20	Shed, Newsstand,	5	Under Demolition	57	Other Areas, Not
	Shanty	6	Under Construction	٠,	Classified (State
21	Shipyard, Drydock		GE(to Building or Contents)		area)
22	Stable	212.00	on the salidaring of contents)		21.04,
23	Steam Generating	0	None-No Appreciable	AREA PIR	E ORIGIN-OCCUPANCY
	plant	ĭ	Light 0-15%		CATION
24	Store Building,	2	Medium 16%-49%		
	Taxpayer	3	Heavy 50% & Greater	COMP	ERCIAL
25	Warehouse, Store- house				Factory:
26	Store Building &	AREA	FIRE ORGIN -FLOOP.	00	Chemicals
	Private Dwelling	00	Outside Building	00	Clothing:
39	Other Commercial	01	1st Floor	01	Dresses
		to	150 71002	02	Undergarment
PUE	1.1C	94	94th and Higher	03	Other (State Type)
		95	Attic	04	Dry Cleaning Laundry
40	Airport Building	96	Poof	05	Electrical Products
41	Asylum	97	Basement	06	Food & Drink Products
42	Bridg e	96	Cellar	07	Furniture
43	Bus Terminal	\$9	Sub-cellar	08	Furs, Fur Goods
44	Church, Synagogue			-	Hats:
45	Dance Hall, Ban-			09	Men's
	quet Hall			. 10	Women's
46	Dispensary, Clinic			11	Leather, Leather
47	Ferry Terminal				Products
	Government Building	AREA	FIRE ORGIN-ROOM OR AREA	12	Machine Shop Metal
	. (Not otherwise class-				works
	ified);	10	Area Not in Building	13	Paints
48	City	11	Attic	14	Paper Products
49	Intersate	12	Awning	15	Petroleum Products
50	Federal	13	Balcony	16	Plastics, Rubber
51	Foreign	14	Basement	17	Printing FAllied Ind-
52	State	15	Bathroom Toilet		ustries
53	Hospital, Infirmary	16	Bedroom, Sleeping	18	Shoes
54	Nursing Home		Area	19	Textiles
55	Railroad Station	17	Ceiling	20	Toy or Doll
56	School; College,	18	Cellar	21	Woodworking
	University	19	Chimney	22	Other Factories not
57	Private High	20	Classroom Lecture		classified(state type)
58	* Public High		Area		Store:
59	rubite ounter	21	Closet	23	Auto Accessories
	High	22	Cockloft	24	Bakery
60	" Private Ele-	23	Court-Exterior	25	Butcher
	mentary	. 24	Court-Interior	26	Candy, Cigar, Stationery
61	School: Public	25	Dining Room, Dining	27	Clothing
	Elementary		Area	28	Department, large
62	" Children's	26	Duct-Air Condition-	29	Department, small (5&10)
	Narsery		ing	30	Dry Cleaner & Tailor
63	Other	27	Duct-Exhaust	31	Drug
64	Television Studio	20	Plant	32	Electrical Appliances
65	Theatre, Legitimate	28.	Plooring	33	Fruit & Vegetables
66	Theatre, Motion	29	Furnace Room	34	Furniture
	Picture	30	Hallway-Private	35	Grocery, Dairy, Deli-
67		31	Hallway-Public		catessen
	Station Structure	32	Incinerator Cl set .	36	Haberdashery
٠.	500000000000000000000000000000000000000				
68	Tunnel		or, Room	37	Ladies Accessories
		.33	or Room Kitchen, Cooking Area	37 38	Ladies Accessories Laundry

```
Restaruant Luncheonette
40
                                                                 09
                                                                           Shaft-Air, Light,
                                                                             Chute, Duct, etc.
             Shoe Repair
42
43
44
                                                                 10
                                                                           Ceiling
             Super Market
             Tavern
                                                                 12
                                                                           Other (state how)
             Other Stores not
45
              classified(state
                                                           CLASSIFICATION BY TYPE FIRE
                type)
                                                           OR EMERGENCY
             Garages:
Non Storage
46
                                                                 TRANSPORTATION FIRES
47
             Storage
Oil Selling Station
                                                                           Ship, Vessel
Motor Vehicle
Other Transportation
48
             Motor Vehicle Re-
pair Shop
Office Building
49
                                                                  28
                                                                  89
50
                                                                             (state type)
             Warehouse:
51
52
53
             Film
                                                                 NON-STRUCTURAL FIRES
             Paper, Rags,Fibre
             Other (state type)
                                                                           ADV (Abandoned/
                                                                 86
54
55
             Freight Depot
                                                                           Derelict Motor
             Pier
                                                                             Vehicle)
             Shipyard
                                                                  90
                                                                           Bonfire
             Shipyard
Lumber Yard
Shed, Newstand, Shanty,etc.
Other Commericial
Building Occupancies,
not classified(state
57
58
                                                                           Brush, Grass
Demolition Wood,
                                                                 92
59
                                                                            Building Site
                                                                           Dump, Land Fill
Rubbish-Outside
                                                                 93
94
                 type)
                                                                             Building
RESIDENTIAL
                                                                 95
                                                                           Manhole
                                                                 96
                                                                           N.Y. Transit System-
Yard Roadway, Ties,
             Apartment Hotel,
Multiple Dwelling"A"
Apartment House, Mul-
tiple Dwelling"A"
60
                                                                           etc.
Railroad-Yard, Road-
61
                                                                 97
                                                                           way, Ties, etc.
Tunnel, Bridge
Other Non-Structural,
             tiple Dwelling "A"
Boarding House, Rooming
House Multiple
Dwelling "B"
Hotel, Multiple
Dwelling "B"
Lodging House, Multiple Dwelling "B"
Private Dwelling "B"
Private Dwelling
62
                                                                 98
                                                                            not classified (state type)
 63
 64
                                                                 EMERGENCY
 65
66
                                                                           Chimney
                                                                 02
              Rectory, Convent,
Monastery
Tenement House,
                                                                          Elevator, Escalator
Explosives Escort
First Aid - Assist
Person(s)
First Aid - Resucita-
                                                                 03
 67
                                                                 05
             Tenement Howse,
New Law, Multi-
ple Dwelling "A"
Tenement Howse, Old
Law, Multiple
Dwelling "A"
Other Residential,
not classified
                                                                 06
 68
                                                                            tion
                                                                 07
                                                                           Marine
                                                                 08
                                                                           Precarious Condition
 69
                                                                           Signs, Trees, etc.
Subway-Railroad
                                                                 09
                 (state type)
                                                                           Water Leak
                                                                           Bomb-Unexploded,
                                                                 11
 PUBLIC
                                                                           Scare
                                                                           Collapse-Cave in
Collision-Vehicular
Incident
                                                                 12
             Airport
Cabaret, Bamquet
Hall
                                                                 13
 71
                                                                 14
                                                                           Controlled Fire,
 72
              Church
                                                                             Permitted
 73
              Dance Hall
                                                                 15
                                                                           Flood Condition-
             Hospital
Motion Picture
 74
                                                                             Broken Water Main
 75
                                                                 16
                                                                           Incinerator
             Theatre
N.Y. Transit
System-Station
                                                                           Leak-Fuel Oil, Gasoline
 76
                                                                           etc.
Leak-Illum, Gas, Flam,
                                                                  18
 77
              Passenger Depot
                                                                              Vapor
              School
                                                                           Lightning
Oil Burner
                                                                  19
 79
             Theatre
T.V. Studio
 80
                                                                 21
                                                                           Person Locked in,
             Other Public, not classified (state
                                                                           Locked out
Power - Electrical
                                                                 22
                  type)
                                                                 23
                                                                           Pressure Rupture
                                                                 24
25
                                                                           Refrigerant Leak
 MANNER EXTENSION
                                                                           Smoke Condition,
                                                                           Odor, Fumes
Sprinkler
 00
              Confined to area
                                                                 26
             of origin
Cockloft
                                                                           Steam Discharge
                                                                 28
                                                                           Other
 G2
              Door or opening
               between rooms
              Ploor
 04
              Hall Stairway
 05
             Partition
 06
             Pipe Recess
 07
             Shaft-Dumbwaiter
             Shaft-Elevator
 08
                                                                                     (3)
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Attachment G-A.2

Explanation of Numeric Codes Used on Fire and Emergency Reports - From 1981 to May 31, 1987

Air Conditioning, Refrigeration Equipment Type of Report 31 Central air conditioning, refrigeration equipment. 32 Water cooling denice, tower. 33 Fixed, stationary local refrigerator unit. 34 Fixed, stationary local air conditioning unit. 1 Structural. 98 No equipment involved-Other object, exposure fire not classified above. Other object; exposure fire. 2 Transportation Fire. 3 Non Structural Fire. 4 Emergency Response. 35 Portable as conditioning, religeration unit. 39 Air conditioning, religeration equipment not classified above. reported. 6 Additional data (for 8F 24A). ENRM OF MEAT OF IGNITION 30 Air conditioning, refrigeration equipment, un determined. How Reported 1 Street Box Manual. Electrical Distribution Equipment Telephone. 41 Fixed wiring. 42 Transformer, associated avercowent or disconnect 12 Heat from gas fueled equipment 4 Class 3—Menual, PFA. 5. Class 3-Value, PFA. equipment. 43 Meter, meter box. 44 Power switch gest, overcurrent protection devices. equipment. Heat from liquid fueled equipment 6 Class 3-Other Automatic, PFA. Class 3-ERS. 44 Power Switch gest, everturest protection devices. 45 Switch (receptacle, outlet. 46 Lighting fixture, lampholder, ballast, sign. 47 Cord, plug. 48 Eamp, light bolb. 49 Electrical distribution equipment, not classified B Street Box - ERS. equipment. 18 Heat from solid fueled equipment. 9 Class 3—Menual, FONY, 10 Pre-recorded Alerm. not known O Special Call Other Than Engine Only-No Chief. above. 46 Electrical distribution equipment, undetermined, classified above. Box (Street or Class 3). 5 Special Call Engine Only -No Chief. B Special Call (Chief Operated). Appliances, Equipment Television, radio, phonograph, 52 Oryer. 53 Washing machine 21 Water caused short circuit arc. Highest Alarm 54 Floor care equipment. 55 Separate motor, generator. O Initial Alarm. More than the Initial Alarm & loss than 3 Engine & 2 56 Hand tools. 57 Portable appliesce designed to produce controlled Unspecified short circuit arc. Lader Co. at work. 2nd Alarm. conductor. 26 Arc, spark from operating equipment or switch 27 Hear from overloaded equipment. 28 Floorscent light balasts. 29 Hear from electrical equipment arcing overloaded. heat. 58 Partable appliance designed not to produce heat. 3 3rd Alarm. A 4th Alarm 59 Appliances, equipment not classified in 51 through 5 5th Alarm. Simultaneous 50 Appliances, equipment, undetermined. 7 Signal 7-5. Special Equipment How Extinguished 61 Electronic aguipment. D. Refore Arrival. 52 Vending mechine, drinking fountain Hand Extinguishers. Heat from Smoking Material 63 Office machine. Sprinkler Heads (State Number). 31 Cigarette: 54 Biomedical equipment device. 3 Roaster Stream Cigar. 65 Separate pump, compressor. Low Pressure Hydrent Stream. 33 Pipe. 39 Heat from smoking material, not classified above. 66 Combustion engine. One-1%" or larger hoseline from a pumping unit or a standaipe outlet, repertiess of line termination (Con-trolling Nozele, Dackeipa, Stang Muhi Yessel, Lagder 87 Conveyor. 68 Printing press. Root from Doon Floren Spack trang Nuclei, uniceps, State must head, Leo Pipe, T/L, Foam Nucle, etc.). 6 Twy-1¼" or larger hoselines as above. 7 Three-1%" or larger hoselines as above. 8 Four or mare 1%" or larger hoselines as above. 69 Special equipment, not classified above. 60 Special equipment, undetermined. 4.1 Cutting torch operation. Welding torch operation. 71 Furnace, oven, kiln. 72 Gasting, molding, forging equipment. 44 Candle, taper. 9 Other State Howk 45 Match. Ignition Stage-Termination Stage 46 Lighter. 73 Heat treating equipment. 2 Smolder Stage, before any flome. 74 Working, shaping machine, 3 Flame Stage. 75 Coating mechine. 76 Painting equipment. 77 Chemical process equipment. EQUIPMENT INVOLVED IN IGNITION 78 Waste recovery equipment. Heat from Hot Object Neating Systems 79 Processing equipment, not classified above. 51 Heat, spark from friction 11 Central heating unit. 78 Processing equipment, undetermined. 12 Water heater. 13 Faced, stationary local heating unit. 14 Indeer fireplace. 15 Portable local heating unit. 52 Molten, hot material. Service, Maintenance Equipment 53 Hot amber, ash. 54 Electric lamp. 81 Incinerator. 55 Rekindle, reignition. 82 Bearing, brake. 83 Rectifier, charger. 16 Chimney, gas vent flue. 17 Chimeny connector, year connector. 84 Terpot, tar kettle. 18 Heat transfer system. 18 Heating systems not classified above. 85 Arc. oil lamp. 10 Heating system, undetermined. 86 Flevator. 87 Torches

Cooking Equipment

- 21 Fixed, stationary surface unit.
- Fixed, stationary oven.
 Fixed, stationary food warming appliance.

- 24 Deep fat fryer. 25 Portable cooking, warming unit.
- 28 Open fire grill.
- 27 Grease hood, duct.
- 29 Cooking equipment not classified above. 28 Cooking equipment, undetermined.
- 89 Service, maintenance equipment, not classified
- 80 Service, maintenance equipment, undetermined.

Other Object, Exposure Fire

- 91 Separato, removed exposure.
- 92 Separate, detached exposure.
- 93 Separate, odjoining exposure. 94 Attached, protected exposure.

- 95 Attached, unprotected exposure.

- Equipment involved in ignition undetermined or not

Heat from Feel-Fired, Fuel-Powered Object

- 11 Spark, ember, flame escaping from gas fueled equip-
- 13 Spark, ember, flome escaping from liquid fueled
- 15 Spark, ember, flame escaping from solid fueled
- Spark, ember, flame escaping from equipment: fuel
- Heat from equipment; fuel not known.
- Heat from fuel-fired, fuel-powered object, not
- 10 Heat from fuel-fired, fuel-powered object, un-

Heat from Electrical Equipment Arcing, Overloaded

- Short circuit are from mechanical damage.
- Short circuit are from defective, worn insulation.
- 25 Arc from faulty contact, loose connection, broken

- not classified above.

 Heat from electrical equipment arcing, overloaded

- 30 Heat from smoking material, undetermined.

- 43 Torch operation, other than cutting and welding.
- 48 Backline from internal combustion engine.
- 48 Heat from open flame, spark, not classified above
- 40 Heat from open flame, spark, undetermined
- 56 Heat from properly operating electrical equipment.
- 57 Heat from improperly operating electrical equipment."
- 59 Heat from hot object, not classified above.
- 50 Heat from hot object, undetermined.

Heat from Explosive, Fireworks

- 61 Explosive
- 62 Blasting agent.
- 83 Fireworks
- 64 Paper cap, party poppes.
- 85 Model recket, not amateur rocketry.
- 56 Incendiary device.
- 69 Heat from explosive, fireworks, not classified above.
- 50 Heat from explosive, fireworks, undetermined.

2 45. Toy, game Wood, Paper -Heat from Natural Source 46 Awning, canopy. 47 Tarpaulin, tent. 61 Growing wood. 71 Sun's heat. 72 Spontaneous ignition chemical reaction. 62 Felled but unsawn wood. Adornment, recreational material, not classified 73 Lightning discharge 63 Sawn wood. above. 64 Wood shavings. 40 Adornment, recreational material, undetermined 74 Static discharge Hardboard, plywood. Fiberboard flow density materiall, wood pulp. 79 Heat from natural source, not classified above. Suppliers, Stock 70 Heat from natural source, undetermined. 67 Paper, untreated, uncoated. 51 Box, carton, bag. Heat Spreading from Another Hostile Fire (Ex-52 Basket, barrel. 68 Cardboard. 53 Pallet, skid (not in use). 69 Wood, paper, not classified above. 81 Heat from direct flame, convection currents. 54 Rope, cord, twine, yarn. 60 Wood, paper, undetermined 55 Packing, wraping material, 82 Radiated heat. fabric, Tentile, Fur 83 Heat from flying brand, ember, spark 57 Bulk storage. 58 Cleaning supplies. 71 Man-made fabric, Niber, finished goods. 84 Conducted heat 72 Cotton, rayon, cotton labric, finished goods.
73 Wool, wool mixture fabric, finished goods. 89 Heat spreading from another hostile fire, not 59 Supplies, stock not classified above classified above. 50 Supplies, stock, undetermined. 74 Fur, silk, other fabric, finished goods 80 Heat spreading from another hostile fire, an-75 Wig. 76 Heman hair. Power Transfer Equipment, Fuel determined. 61 Electrical wire, cable insulation. 62 Transformer.
63 Conveyor belt, drive belt, V-belt.
64 Tire. Other Form of Rest of Ignition 79 Fabric, textile, fur, not classified above. 9.7 Multiple forms of heat of ignision. 70 Fabric, textile, fur, undetermined. 99 Other form of heat of ignition. Material Compounded with Oil DD Foun of heat of ignition undetermined. 65 Fuel. 81 Linoleum. 69 Power transfer equipment, lust, not classified above TYPE OF MATERIAL IGNITED 60 Power transfer equipment, fuel, undetermined. B3 Treated and/or coated paper. Gas General Form B4 Waterproof canvas 11 Natural gas. 12 LP-city gas ILP and air mix). 85 Day rags. 71 Agricultural product. 86 Asphalt treated material. Fence, pole, 13 Manufactured gas. 73 Fertilizer. 74 Grawing, living form. 89 Material compounded with oil, not classified above. 80 Material compounded with oil, undetermined. 15 Anesthetic oas Rubbish, trash, waste. 16 Acetylene Other Type of Material Ignited 17 Specialty gas other than anesthetic. Cooking materials. 77 Sign. 97 Multiple types of material first ignited. 19 Gas not classified above. 98 Type of material not applicable. Special Form 99 Type of material not classified above 81 Bust, Fiber, lint 00 Type of material undertermined or not reported. Elamorable Combustible Liquid 82 Pyrotechnics, explosives 83 Atomized, vaporized liquid. 21 Class IA flammable liquid FORM OF MATERIAL IGNITED 22 Class IB flammable liquid 84 Chips. 85 Palletized material, material stored on patiets. Structural Component, Finish 23 Gasoline. 24 Class IC flammable liquid. 11 Exterior roof covering, surface, finish. Gas or liquid in or from pipe or container 25 Class II combustible liquid. 12 Exterior sidewall covering, surface, finish. 87 Rolled material. 26 Class IIIA combustible liquid. 13 Exterior trim, appurtenances. 14 Floor covering, surface.
15 Interior wall covering, surface items permanently affixed to wall and door surface. Class IIIB combustible liquid. Other Form of Material 29 Flammable, combustible liquid, not classified above 97 Multiple form of material ignited 20 Hammatile, combustible liquid, undetermined. 98 Form of material not applicable. 18 Ceiling covering, surface. Volatile Solid, Chemical Form of material not classified above 17 Securioral member framino 31 Fat. grease (food). DO Form of material undetermined or not reported 18 Thermal, acquistical insulation within wall, partition. 32 Grease (nonfood). or floor/ceiling space.

19 Structural component, finish, not classified above.

10 Structural component, finish, undetermined. IGNITION FACTOR 33 Polish. Inconding 34 Adhesive, resin, tar. 11 Incendiary, not during civil disturbance. 35 Applied paint, varnish 12 Incandiary, during civil disturbance. 36. Combustible merel. 37 Solid (hemical (specify type). 21 Uphoistered sofa, chair, vehicle seats. 36 Radioactive material. 22 Nanupholstered chair, bench. 21 Suspicious, not during civil disturbance.22 Suspicious, during civil disturbance. 39 Votatile solid, chemical, not classified above. 23 Cabinetry. 24 Ironing board. 30 Votatile solid, chemical undetermined. Misuse of Heat of Ignition 25 Appliance housing or casing Plastic 31 Abandoned, discarded material. 29 furniture not classified above. 41 Polyurethane 32 Thawing. 33 Falling asleep. 20 Furniture, undetermined. 42 Polystyrene. 33 Faning assets
34 Inadequate control of open live.
35 Cutting, welding too close to.
36 Children with, child playing.
37 Unconscious, mental, physical impairment.
38 Misuse of heat of ignition not classified above.
30 Misuse of heat of ignition, undetermined. Soft Goods, Weering Apperel 4.3 Polyvinyl 44 Polyacrylic 31 Mattress, officer. 45 Polyester. 32 Bedding, blanket, sheet, comforter. 46 Polyobelia 33 Lines, other than bedding 49 Plastic, not classified above. 34 Wearing apparel not on a person. 35 Wearing apparel on a person. 36 Curtain, blind, drapery, tapestry. 40 Plastic, undetermined. Misuse of Material Ignited Natural Product 37 Goods not made up. 41 Fuel spilled, released accidentally. 51 Rubber. Improper fucing techniques. Flammable figure used to kindle fire. 38 Luggage 39 Soft goods, wearing apparel, not classified above. 52 Cork. 53 Leather 30 Soft goods, wearing apparel, undetermined Washing part, cleaning, refinishing, painting. 54 Grass, leaves, hay, straw 55 Grain, natural fiber. 45 Improper container. 46 Combustible too close to heat. Adorement, Recreational Material 56 Coal coke briquettes, peat. 47 Improper storage. 48 Children with, child playing. 41 Christmas tree. 57 food starch 58 Inhacco 4.2 Decoration for special event. Misuse of material ignited not classified above. 59 Natural product, not classified above 50 Natural product, undatermined. 41 Rock 40 Misuse of material ignited, undetermined. 44 Magazine newspaper, writing paper

Mechanical Failure, Malfunction	Classification of Building By Use—Public	15 Bathroom Toilet.
		16 Bedroom, Sleeping Area.
51 Part failure, leak, break. 52 Automatic control failure.	40 Airport Building.	17 Ceiling.
53 Manual control failure.	41 Asylum.	. 18 Cellar.
54 Short circuit, ground fault.	42 Bridge.	19 Chimney.
55 Other electrical failure.	43 Bus Terminal.	20 Classroom Lecture Area.
56 Lack of maintenance, worn out.	44 Church, Synagogue.	21 Closet.
57 Backfire.	45 Dance Hall, Banquet Hall. 46 Dispensary, Clinic.	'22 Cockloft.
59 Mechanical failure, malfunction not classified above.	47 Ferry Terminal	23 Court-Exterior.
50 Mechanical failure, malfunction, undetermined.	Government Buildings—(Not otherwise classified):	24 Court—Interior.
Design, Construction, Installation Deficiency	48 City.	25 Dining Room, Dining Area.
61 Design deficiency.	49 Interstate.	26 Duct—Air Conditioning.
62 Construction deficiency.	50 Federal.	27 Duct—Exhaust.
63 Installed too close to combustibles.	51 · Foreign.	28 Flooring.
64 Other installation deficiency.	52 State.	29 Furnace Room.
65 Property too close to.	53 Hospital, Infirmary.	30 Hallway—Private.
69 Design, construction, installation deficiency not	54 Nursing Home.	31 Hallway-Public.
classified above.	55 Railroad Station.	32 Incinerator Closet or Room.
60 Design, construction, installation deficiency, undeter-	56 School: College, University.	33 Kitchen, Cooking Area.
mined.	57 School: Private High.	34 Living Room.
Operational Deficiency	58 School: Public High.	35 Lobby.
71 Collision, overturn, knockdown.	59 School: Public Jr. High.	36 Machinery Room.
72 Accidentally turned on, not turned off.	60 School: Private Elementary.	37 Office Area.
73 Unattended.	61 School: Public Elementary.	38 Operating Laboratory Area.
74 Overloaded.	62 School: Children's Nursery.	39 Partition.
75 Spontaneous heating.	63 School: Other.	40 Porch.
76 Improper startup, shutdown procedures.	64 Television Studio.	41 Projection Booth.
79 Operational deficiency not classified above.	-65 Theatre, Legitimate.	42 Recreation Area.
70 Operational deficiency, undetermined.	66 Theatre, Motion Picture.	43 Roof.
	67 Transit System—Station Structure.	44 Sales Showroom Display Area.
Natural Condition	68 Tunnel.	45 Shaft—Duct, Pipe.
81 High wind.	69 Other Public.	46 Shaft—Dumbwaiter.
82 Earthquake.	os other reals.	47 Shaft—Elevator.
83 High water, including floods.	Residential	48 Shaft—Exterior Light.
84 Lightning.	80 Apartment Hotel "A."	49 Shaft—Interior Light.
89 Natural condition not classified above. 80 Natural condition, undetermined.	81 Apartment House "A."	50 Shaft-Vent.
ou natural condition, undetermined.	82 Boarding House, Rooming House "B."	51 Shipping Receiving Loading Area.
Other Ignition Factor	83 Convent, Rectory, Monastery, etc.	52 Stage.
91 Animal.	84 Dormitory—School, Club, Lodge.	53 Stairway.
92 Rekindled from a previous fire.	85 Hotel "B."	54 Storage Room Area.
99 Other ignition factor not classified above.	86 Lodging House "B."	55 Vacant - Room, Apartment or Area.
00 Ignition factor undetermined or not reported.	87 Matel.	56 Work Area, Workroom.
	88 Private Dwelling: One Family.	57 Other Areas, Not Classified (state area)
Construction Class	89 Private Dwelling: Two Family.	S. Other Areas, Hot Classified Istate area;
O No Building Involved.	90 Tenement: New Law "A."	Area Fire Origin-Occupancy Classification-
1 Fireproof Structure	91 Tenement: Old Law "A."	Commercial
2 Fire Protected Structure.	92 Converted Dwelling "A." 99 Other Residential.	Factory:
3 Non-fireproof Structure.	55 Other residential.	
4 Wood Frame Structure. 5 Metal Structure.	Building Status	99 Chemicals.
6 Heavy Timber Structure.	1 Occupied.	Clothing:
o neavy rimber Structure.	2 Partly Occupied, Good Condition.	O1 Dresses.
Classification of Building By Use-Commercial	3 Partly Occupied, Deteriorating.	02 Undergarment.
01 Bank.	4 Vacant.	03 Other (state type).
02 Brewery.	5 Under Demolition.	04 Dry Cleaning Laundry.
03 Coal Pocket.	6 Under Construction.	05 Electrical Products.
04 Department Store.	o diladi della sectori	06 Food & Drink Products.
05 Electrical Power Plant.	Damage (to Building or Contents)	07 Furniture.
06 Factory: Multi Occupancy.	O None.	
07 Factory: Single Occupancy.	1 1 to 15%.	O8 Furs, Fur Goods.
08 Foundry.	2 16 to 49%.	Hats:
09 Freight Depot.	3 50% or Greater.	09 Men's, *
10 Garage: Non-Storage.		10 Women's.
11 Garage: Storage.	Area Fire Origin—Floor	11 Leather, Leather Products.
12 Gas Works.	00 Outside Building.	12 Machine Shop Metal Works.
13 Lumber Yard.	O1 1st Floor.	13 Paints.
14 Motor Vehicle Repair Shop.	to	
15 Office Building.	94 94th and Higher.	14 Paper Products.
16 Oil Selling Station.	95 Attic.	15 Petroleum Products.
17 Oil Storage Plant.	96 Roof.	16 Plastics, Rubber.
18 Pier, Wharve, Dock, Bulkhead Building.	97 Basement.	17 Printing & Allied Industries.
19 Restaurant, diner.	98 Cellar.	18 Shoes.
20 Shed, Newsstand, Shanty.	99 Sub-cellar.	19 Textiles.
21 Shipyard, Drydock.	oo oud-tallat.	20 Toy or Doll.
22 Stable.	Area Fire Origin—Room or Area	21 Woodworking.
23 Steam Generating Plant.	10 Area Not in Building.	22 Other Factories Not Classified (state type).
24 Store Building, Taxpayer.	11 Attic.	Store:
25 Warehouse, Storehouse.	12 Awning.	23 Auto Accessories.
26 Store Building & Private Dwelling.	13 Balcony.	24 Bakery.
39 Other Commercial	14 Basement.	
	17 Juaginom.	25 Butcher.

4 Area Fire Origin-Occupancy Classification-78 School. 95 Manhole. 79 Theatre. 96 N.Y Transit System-Yard, Roadway, Ties, etc. (continued) 97 Railroad-Yard Roadway, Ties, etc. 80 T.V. Studio. Store: 98 Tunnel, Bridge.
99 Other Non-Structural, Not Classified (state type). 81 Other Public, Not Classified (state type). Store:
Store:
Clothy, Cigar, Stationery.
Clothing.
Bepartment, Large.
Department, Small (5&10).
Cry Cleaner & Tailor.
Drug.
Electrical Appliances. Manner Extension Emergency 00 Confined to area of origin. 02 Chimney. 01 Cockloft. 03 Elevator, Escalator. 02 Door or Opening Between Rooms. 04 Explosives Escort. 03 Floor 05 First Aid-Assist Person(s). 04 Hall Stairway. 33 Fruit & Vegetables. 34 Furniture. 35 Grocery, Dairy, Delicatessen. 05 Partition. 06 First Aid-Resuscitation 07 Marine. 06 Pipe Recess. 08 Precarious Condition-Signs, Trees, etc. 36 Haberdashery. 37 Ladies Accessories. 07 Shaft-Dumbwaiter. 09 Subway-Railroad. 08 Shaft-Elevator. 09 Shaft-Air, Light, Chute, Duct, etc. 10 Water Leak. 38 Laundry. 39 Paint Hardware. 10 Ceiling. 11 Bomb-Unexploded, Scare. 12 Collapse-Cave In. 40 Restaurant Luncheonette 11 Window 41 Shoe. 12 Other (state how). Shoe Repair 14 Controlled Fire, Permitted. Number of Occupancies . 15 Flood Condition-Broken Water Main. 43 Super Market 44 Tavern. 01 1 Occupancy. 16 Incinerator. 45 Other Stores Not Classified (state type). 17 Leak-Fuel Oil, Gasoline, etc.. 2 Occupancies. 99 99 or more Occupancies. 18 Leak-Hum. Gas, Flam. Vapor. Garages: 19 Lightning. 46 Non Storage 47 Storage. 48 Oil Selling Station. 20 Oil Burner 0 did not spread beyond building of origin. 21 Person Locked In, Locked Out. 1 structure or vehicle. 49 Motor Vehicle Repair Shop. 50 Office Building. Power-Electrical. 9 or more buildings or vehicles. 23 Pressure Rupture Note: Form BF-24A must be submitted for each building or vehicle listed in this coded space. 24 Refrigerant Leak. Warehouse: Smoke Condition, Odor, Furnes. 51 Film. 52 Paper, Rags, Fibre. Smoke Detector 26 Sprinkler. 27 Steam Discharge. O No detector present. 53 Other (state type). 28 Defective Alarm Device (other than Sprinkler). 1 Ionization type, power disconnected or battery 54 Freight Depot. 29 Smoke Detector. 55 Pier. removed by occupant.
2 lonization type, provided early warning. 30 Other 56 Shipyard. 57 Lumber Yard. 3 Ionization type, failed to operate, battery powered. Power for Equipment 58 Shed, Newsstand, Shanty, etc. 59 Other Commercial Building Occupanices, Not 4 Ionization type, failed to operate, line voltage power. 01 1-23 volts A.C. 5 Photoelectric type, power disconnected or battery 02: 24 volts A.C. Classified (state type). removed by occupant. 1-6 volts D.C. 6 Photoelectric type, provided early warning. Residential 12 7-12 volts D.C. 7 Photoelectric type, failed to operate, battery 60 Apartment Hotel, Multiple Dwelling "A." 61 Apartment House, Multiple Dwelling "A." 62 Boarding House, Rooming House, Multiple Dwelling powered.

8 Photoelectric type, failed to operate, line voltage 15 115 volts A.C. 28 208 volts A.C. 30 220-230 volts A.C. 63 Hotel, Multiple Dwelling "B."
64 Lodging House, Multiple Dwelling "B."
65 Private Dwelling.
66 Rectory, Convent, Monastery, etc. 33 231-330 volts A.C. 9 Not possible to determine if detector operated or 34 331 or higher volts AC. 50 25-50 volts A.C. Classification by Type Fire or Emergency 61 Butane. 67 Tenement House, New Law, Multiple Dwelling "A." 68 Tenement House, Old Law, Multiple Dwelling "A." 62 Coal, Coke, Charcoal, Peat. Transportation Fires 63 Fuel Oil, No. 1 or No. 2. 87 Ship, Vessel. 64 Fuel Dil. No. 3 or No. 4. 69 Other Residential, Not Classified (state type) 88 Motor Vehicle 65 Fuel Dil. No. 5 or No. 6. Public 89 Other Transportation (state type). 66 Gasoline. 70 Airport. Non-Structural Fires 67 Kerosene. 71 Cabaret, Banquet Hall. 86 ADV (Abandoned/Derelict Motor Vehicle). 68 LN gas (stored as liquid). 72 Church. 73 Dance Hall. 69 LP gas (stored as liquid). 70 Natural or illuminating gas 'as a gas). 90 Bonfire. 91 Brush. Grass. 74 Hospital. 92 Demolition Wood, Building Site. 71 Paper. 75 Motion Picture Theatre. 93 Dump, Land Fill. 72 Propane. 76 N.Y. Transit System-Station. 94 Rubbish-Outside Building. 77 Passenger Depot. 99 Other.

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Attachment G-A.3

Explanation of Numeric Codes Used on Fire and Emergency Reports - From June 1, 1987 to present

25 Oxygen

FIRE RECORD CODE LIST MO3-1 H1-91126A-S-R2S-115 1 14.1 TYPE OF REPORT 31 Rammable Liquids, flashpoint 100 degrees or less. 2. Standpipe present but not used Code No. 33 Combustible Liquids, flashpoint greater than 100 No standpipe present Equipment present, not in service, (Record action taken) degrees. 41 Rammable Solids 1 Structural in Operations Section) 2 Transportation Fire 42 Spontaneously Combustible Materials 3 Non-Structural Fire 14.11 CONDITION ON ARRIVAL CODES 43 Materials Dangerous when Wet 4 Emergency Response 51 Oxidizers 0 No indication of fire 5 False Alarm 52 Organic Peroxides 61 Poisons 6 Additional data (BF-24A) 1 Overheat 2 Smoldering 62 Etiologic (Infectious) Substances 63 Imitants 14.2 HOW REPORTED Code No. 8 Out on Arrival 71 Radioactive | Materials 72 Radioactive | Materials 10 Telephone 14.12 EQUIPMENT INVOLVED IN IGNITION 20 Street — Manual 21 Class 3 — Manual 30 Glass 3 — P.F.A. Radioactive III Materials 1. HEATING SYSTEMS 81 Cormsives 10. Solar panel 98 Multiple Classes (More than one hazardous material) 31 Glass 3 Valve, Sprinkler — P.F.A. 32 Glass 3, Other Automatic — P.F.A. Central heating unit, furnace 99 Other Water heater. Woodstove, wall furnaces, fixed local heating unit 14.6.2 Amount & Unit — the letter designating the unit of measurement shall follow the two digits indicating the 50 Verbal Indoor fireplace 60 Pre-Recorded Telephone Alarm amount. Example: 3000 gals, of gasoline would be correctly coded as 07G in the "Amount" field. 15. Portable heating unit 70 Tie Line (Direct Line to Dispatcher — Pipeline Corp.) 80 Street Box — ERS 16. Chimney, gas vent flue 000 No Hazardous Material Involved Chimney vent connector Heat transfer system, ducts, pipes. 81 Class 3 — ERS 90 Cable Television Link 01 Less than 1 02 1-9 F Cubic feet, for gases only G Gallon 19. Not classified above. Note: 1. P.F.A. stands for Private Fire Alarm. 03 10-49 M Multiple Units - Ex; a spill involves These are received using the 3-Box-Terminal 2 COOKING FORDERS a liquid and a solid 05 100-499 Designation. 21. Fixed, stationary surface unit, stove 2. If the atarm was encountered while DE 500-999 T Ton Fixed, stationary oven responding to or returning from another alarm, it is considered a verbal alarm. 07 1,0000-4,999 Fixed, stationary food warming applicance. OR 5,000-9,999 Deep fat fryer Portable cooking, warming unit 09 10,000-49,999 3. A pre-recorded telephone alarm (PRTA) 10 50,000-99,999 is used to designate those telephone elems received from recording or pre-dialed machines. 26. Open fired grill 27. Grease hood, duct. 11 100,000 and more whether directly to 911, 7-digit telephone or an 29. Not classified above 14.7 HEATING EQUIPMENT INVOLVEDalarm service. TYPE OF FUEL USED 3. AIR CONDITIONING, REFRIGERATION EQUIPMENT 14.3 INITIAL ALABM Code No. 31. Central air conditioning, refrigeration equipment 32. Water Cooling device, tower 1. Kerosene Code No. L.P.G. 0 Special Call Other Than Engine Only - No Chief 33 Celid boxes, freezers, refrigerators. 34 Fixed, stationary local air conditioning unit 35 Portable air conditioning, regrigeration unit, dehu-Electric 1 Box (Street or Class 3) 5 Special Call Engine Only — No. Chief 8 Special Call (Chief Operated) Wood Cost midifier 39. Not classified above. Natural Gas 4. ELECTRICAL DISTRIBUTION EQUIPMENT 14.4 HIGHEST ALARM 9 Other 41. Fixed Wiring, power lines, junction boxes. Code No. O. No Heating Equipment Involved Transformer, overcurrent or disconnect equipment. 0 Initial Alarm 43. Meter, meter box. 14.8 HOW EXTINGUISHED 1 More than the Initial Alarm & Less than 3 Engines & 44. Power Switch gear fused, circuit breakers. 2 Ladder Cos. at work. Code No. 45. Switch, receptacle outlet. 2 2nd Alarm 0. Before Arrival 3 3rd Alarm 45. Lighting fixture, lamp-holder ballast, sign, Hand Extinguishers 47. Cord, plug 48. Lamp, light both. 4 4th Alarm Sprinkler Heads (State Number of heads that operated 5 5th Alarm in Operations Section) 49. Not classified above Simultaneous Booster Stream 7 Signal 7-5 Low Pressure Hydrant Stream 5. APPLIANCES EQUIPMENT One 194" or larger hoseline from a pumping unit or a standgipe outlet, regardless of fine termination (Controlling Nozde, Deckpipe, Stang, Multi Versal, Ladder Pipe, T/L, Foam Nozde, etc.) 50. Dishwasher. 14.5 BOROUGHS 51. Television, radio, sound or picture. 52. Clothes dryers. Code No. I Manhattan 53. Washing machine. 5. Two 1¼4" or larger hoselines as above. 7. Three 1¼4" or larger hoselines as above. 8. Four or more 1¼4" or larger hoselines as above. 2 Bronx 54. Floor care equipment, vacuum, 3 Staten Island Separate motor, generator. 4 Brooklyn 5 Queens 56. Hand tools, soldering Irons, drills. 9 Other (State How) 57. Controlled heat appliance, electrical blankets, steam 14.9 SPRINKLER PERFORMANCE—II sprinklers were irons, heat tapes. 14.6 KAZARDOUS MATERIALS present or a factor in this operation, record their Electrical razors, can openers. Not classified above. 14.6.1 Class to be obtained from D.O.T. required labels performance. or placard or from shipping papers of other documents. Equipment Operated 6. SPECIAL EQUIPMENT Code No. Equipment in service, did not operate Equipment present, fire to small to operate Equipment operated, did not extinguish fice 00 No Hazardous Materials Involved Electronic equipment, radar, x-rays, computer, tele-phone, transmitter equipment. 11 Class A Explosives 12 Class B Explosives Vending machine, drinking fountain. No equipment present 13 Class C Explosives 53. Office machines. Equipment present, not in service. (Record action taken 15 Blasting Agents 21 Flammable Gases Biomedical equipment, device. in Operations Section) 65. Separate pump, compressor, sump pump. 14.18 STANDPIPE PERFORMANCE—If a standgipe system 22 Non-Flammable Gases 66. Internal combustion engine. 23 Poison Gases was present or used in this operations, record its 67 Conveyor 24 Chlorine

68. Printing press.

69 Not classified above

performance.

1. Standpipe serviceable and used

2

7. PROCESSING EQUIPMENT

- 71. Furnace, oven, kiln. 72. Casting, molding, forging.
- 73. Heat treating, quench tank.
- 74. Working, shaping, machine saws, grinders, sanders,
- 75. Coating machine, asphalt saturating, rubber spreading machines.
- 76. Painting, dipping, spraying.77. Chemical process, distilling.78. Waste recovery.
- Waste recovery.
- 79. Not classified above.

8. SERVICE, MAINTENANCE EQUIPMENT

- 81. Incinerator.
- 82. Bearing, brake.
- 83. Rectifier, charger, battery.
- Tarpot, tar kettle.
- 85. Arc. oil lamp, gas manties.
- 86. Elevator.
- 87. Torches, bunsen burners.
- 88 Not classified above.

9. OTHER OBJECTS, EXPOSURE FIRE

- Vehicle, exhaust systems, vehicle parts.
 No equipment involved.
- 99. Other object, Exposure Fire not classified above.

14.13 FORM OF HEAT IGNITION

- 1. HEAT FROM FUEL-FIRED, FUEL-POWERED OBJECT The difference between subdivision 11 and subdivision 12 is whether a spark, ember or flame actually excaped from the equipment, or whether it was simply overheating of outside surface of the equipment (or its internal heat) causing the ignition of nearby combustibles.

 11. Spark, ember flame escaping from gas fueled
- 12. Heat from gas fueled equipment, pilot lights, normal flames.
- 13. Spark, ember, flame escaping from liquid fueled equipment.
- Heat from liquid fueled equipment, pilot lights.
- 15. Spark, ember, flame escaping from solid fueled equipment
- 16. Heat from solid fueled equipment.
- 17. Spark, ember, flame escaping from equipment, fuel not known.
- 18. Heat from equipment; feel not known.
- 19. Not classified above.

2. HEAT FROM ELECTRICAL EQUIPMENT ARCING, OVERLOADED. 21. Water caused short circuit arc.

- 22. Short circuit arc from mechanical damage.23. Short circuit arc from defective, worn insulation.
- 24. Unspecified short circuit arc.
- 25. Arc from faulty contact, loose connection, broken conductor.

 26. Arc, spark from operating equipment or switch.
- 27. Heat from overloaded equipment, wires, motors.
- 28 Fluorescent light hallast
- 29. Not classified above

3. HEAT FROM SMOKING MATERIAL

- 31. Cigarette.
- 32. Cigar. 33 Pine
- 39. Not classified above

4. HEAT FROM OPEN FLAME, SPARK

- Gutting torch operation (separating metals).
- 42. Welding torch operation (joining metals).
 43. Blow torches, plumbers torches, Bunsan Burners, soldering, paint stripping. 44. Candle, taper.

- Match.
 Lighter (flame type).
 Campfires, bonfires, warning flares, rubbish fires.
- 48 Backfire from internal combustion engine.
- 49. Not classified above.

5. HEAT FROM HOT OBJECT

- Heat, spark from friction, overheated tires.
 Molten metal, hot forging and hot glass.
- 53. Hot ember, ash.
- 54. Electric lamp, light bulbs.
- Rekindle, reignition.
 Heat from properly operating electrical.
- Heat from Improperly operating electrical equipment. Not classified above.

6. HEAT FROM EXPLOSIVES, FIREWORKS

- Explosives, bombs, ammunition.
 Blasting agent.
- 63. Fireworks, sparklers.
- 64. Paper cap, party popper. 65. Model rocket, not amateur rocketry.
- 66. Incendiary device.
- 67. Not classified above.

7. HEAT FROM NATURAL SOURCE

- 71. Sun's heat.
- Spontaneous ignition, chemical reaction.
- 73. Lightning discharge.
- 74. Static discharge.
 79. Not classified above.

8. HEAT SPREADING FROM ANDTHER HOSTILE FIRE (EXPOSURE)

- Heat from direct flame, convection currents.
- 82. Badiated heat
- 83. Heat from flying brand, ember, spark.
- 84. Conducted heat.
- 89 Not classified above

9. OTHER FORM OF HEAT OF IGNITION

- Multiple forms of heat of ignition.
 Not classified above.

14.14 TYPE OF MATERIAL IGNITED

- 1. GAS
- 11. Natural oas
- 12. LP-City Gas (LP and air mix).
- 13. Manufactured gas. 14. LP-Gas.
- Anesthetic gas. 16 Acetylene.
- Specialty gas other than anesthetic.
 Not classified above.

2. FLAMMABLE, COMBUSTIBLE LIDEO

- Ethyl ether, pentane and ethylene oxide (Class 1A),
 Acctone, ethyl alcohol, JP-4 jet fuel and methyl ethyl ketone
- Gasoline.
- 24. Butyl alcohol, propyl alcohol styrene and turpentine.
- (Class IC).
 Kerosene, Fuel Oil 1, 2, 4, 5 and Diesel Fuel No. 6 fuel oil, cottonseed oil and creosete oil, (Class IIIA).
- Cooking oil, transformer and lubicating oil, (Class IIIB)
 Not classified above:

8. VOLATILE SOLID, CHEMICAL

- 31. Fat, grease (food). 32. Grease (nonfood), petroloum iellies.
- 33. Polish, paraffin, was.
- 34. Creosote, pitch, adhesive, resin, tar, gelatin, rosin, asphalt. 35. Applied paint, varnish.
- 36. Combustible metal magnesium titanium and zirconium.
- 37. Solid chemical, explosives.
- 38. Radioactive material 39. Not classified above

4. PLASTIC

- 41. RIGID PLASTICS Included are molded plastics such as appliance cases, floor tile, decorative kitchen laminates.
- 42. RIGID FOAM PLASTICS
 - Included are rigid thermal foam insulation for walls and refrigerators.

43. FLEXIBLE PLASTICS

Included is electrical wire insulation.
44. FLEXIBLE FOAMPLASTICS

Included are mattresses, furniture interior team and

carpet pads. FILM PLASTICS

included are polyethylene trash bags, photographic tilm and coated wallpaper.

49. Plastic not classified above.

5. NATURAL PRODUCTS

- 51. Rubber. 52. Cork. 53. Leather.
- 54. Grass, leaves, hay and straw. 55. Grain, feathers, felt, kapok, hemp, jute, cotion, before
- processing. Coal, coke, briquettes, peat. 56. 57.
- Food, starch, excluding fat and grease.
- 58. Tobacco. 59. Not classified above.
- 6. WOOD, PAPER
- 62
- Growing wood, tree.
 Felled but unsawn wood.
 Finished lumber, finished wood.
- 64. Wood shavings, sawdust excelsion 65. Hardboard, plywood.
- Fiberboard, wood pulp, press board.
 Paper, untreated, uncoated.
- 67. Paper, untre 68. Cardboard.

69. Not classified above

- 7. FABRIC, TEXTILE, FUR
- 71. Man-made tabric, fiber, funished goods. 71. Mail-mace tabric, incer, funds
 72. Cotton, rayon, cotton fabric.
 73. Wool, wool mixture, fabric.
 74. Fur, silk, other labric.
 75. Wig.
 76. Human hale.
 79. Not classified above.

- 8. MATERIAL COMPOUNDED WITH OIL
- 81. Linoteurn. 82. Oil cloth,
- 83. Treated and/or coated paper, wax paper. 84. Waterproof canvas. 85. Olly race.

86. Asphalt treated material. 89. Not classified above.

- 9. OTHER TYPE OF MATERIAL (GNITED
- 97. Multiple types of material first ignited. 99. Not classified above.

- 14.15 FORM OF MATERIAL IGNITED 1. STRUCTURAL COMPONENT, FINISH
- Exterior roof covering, surface, finish.
 Exterior sidewall, covering surface, finish, eaves.

- 11. Exterior sidewall, covering socials.
 12. Exterior sidewall, covering socials.
 13. Doors, purches and platforms.
 14. Tile, carpet, rug flooring and stairs.
 15. Interior wall covering.
 16. Ceiling covering surface.
 17. Streetwall member, framing. Structural member, training.

 Thermal, acoustical insulation, within wall or ceiling.
- Not classified above.

- 2. FURNITURE
- Uphotstred sofa, chair, vehicle seats
 Nonuphotstered chair, bench,
 Call cabinety, filing cabinets, planos, dressers, desks, tables and bookcases.
- 24. Ironing board. Appliance housing or casing.
 Not classified above.
- 3. SOFT GOODS, WEARING APPAREL
- 31. Mattress, pillow.
 32. Badding, blanket, sheet, comforter, heating pad.
 33. Linen, towals, tablecloths.
- . Wearing apparel not on a person.
 Wearing apparel on a person. 34
- 35. 36. 37. Curtain, blind, drapery, tapestry.
- Fabrics, yard goods. 38. Luggage. 39. Not classified above.

539 Storebuilding, Taxpayer. 891 Warehouse Storehouse. 4. ADDRNMENT, RECREATIONAL MATERIAL 5. MECHANICAL FAILURE, MALFUNCTION Christmas tree.
 Decoration for special event. 51. Part failure, leak, break. 52. Automatic control failure. 410 Store Building & Private Owelling, 580 Other Commercial. Short circuit, ground fault. PUBLIC 44. Magazine, newspaper, writing paper, files. 55. Other electrical failure. 171 Airport Building. 361 Asylum. 921 Bridge. 173 Bus Terminal. 45. Toy, game, Lack of maintenance, worn out, tailure to clean. 57. Backfire. 59. Not classified above 46. Awning, canopy. 47. Tarpaulin, tent. 49. Not classified above. 6. DESIGN, CONSTRUCTION, INSTALLATION DEFICIENCY 133 Church, Synagogue.121 Dance Hall, Banquet Hall.334 Dispensary, Clinic. 5. SUPPLIES, STOCK 334 Oispensary, Ultilo. 177 Ferry Jerminal, 331 Hospital, Infirmary. 311 Nursing Home, 178 Railroad Station, Street Level. 175 Railroad Station, Above Grade. 176 Railroad Station, Above Grade. 51. Box, carton, bag Design deficiency, catalytic conventer failure. 177 331 311 174 62. Construction deficiency. 63. Installed too close to combustibles. 52 Basket barrel 53. Pallet, skid. 64. Other installation deficiency. 65. Property too close to, included are exposure fires. 54. Rope, cord, twine, yarn. 55. Packing, wrapping material. 69. Not classified above. 176 Baltroad Station, Above Grade.
241 School; College, University.
215 School: High School.
214 School: Jernor High.
215 School: Elementary.
217 School: Children's Nursary.
218 School: Other.
219 School: Other.
218 Television Studio.
219 Theatre, Legitimate,
218 Theatre, Legitimate,
219 Tinasit System—Station Structure.
210 Tinasit System—Station Structure.
227 Turnet. 56. Bale storage 57. Bulk storage. 7. OPERATIONAL DEFICIENCY Brooms, brushes, mops, cleaning cloths, cleaning supplies. 71. Collision, overturn, knockdown. 72. Accidentally turned on, not turned off. 59. Not classified above. Unattended 6. POWER TRANSFER EQUIPMENT, FUEL Overloaded. 75. Spontaneous heating. 61. Electrical wire, cable insulation. Improper startup, shutdown procedures. 62. Transformer. 170 Transit System 922 Tunnel, 119 Other Public. 63. Conveyor belt, drive belt, v-belt. Not risceified shows 64. Tire. 8 NATURAL CONDITION 65. Fuel. 81. High wind. RESIDENTIAL 69. Not classified above. 82. Earthquake NestDeerInal.
489 Apartment Hotel "A".
489 Apartment House "A".
489 Apartment House "A".
489 Boarding House "B".
485 Convent, Rectory, Monastery, etc.
461 Bormiton—School, Club, Lodge. 7. GENERAL FORM 83. High water including floods. 84. Lightning. 71. Argicultural product. 89. Not classified above. 72 Feace note. 73. Fertilizer 9. OTHER IGNITION FACTORS 449 Hotel "B".
449 Hotel "B".
440 Lodging House "B".
440 Motel.
411 Private Dwelling: One Family.
440 Private Dwelling: Nav Family.
420 Tenement: New Law "W." 74. Forests, brush and grass. 91 Aminual 75. Film, creosote, rubbish, trash, waste, 92. Rekindled from a previous fire. 76. Cooking materials. 99. Not classified above. 77. Sign. 00 No Fire 8. SPECIAL FORM 423 Tenement: Old Law "A". 422 Converted Dwelling "A". 490 Other Residential. 14.17 JUVENILE INVOLVED IN IGNITION 81. Dust, fiber, lint, sawdust. B2. Pyrotechnics, explosives.
 Atomized, vaporized liquid 0. Juvenile Not Involved in Ignition or No information that a Juvenile was involved. SPECIAL PROPERTIES Juvenile involved in lightion. 972 Airport Runway. 934 Cemetery. 981 Construction Site. 84. Chips. 85. Material stored on pallets. 14.18 CONSTRUCTION CLASS 86. Accelerants. 932 931 Dump, Landfill. Open Land, Fields 97 Solled material Code No. 0. No building Involved. 965 983 962 952 Parking Area, Lot. Pipeline, Power Line Right-of-Way. Fireproof Structure. 9. OTHER FORM OF MATERIAL Fire Protected Structure. Public Street. Railroad Switching Yard, marshalling yard. 97. Multiple form of material ignited. 99. Not classified above. 3. Non Fireproof Structure. Wood Frame Structure. 936 Vacant Lots. 939 Outdoor Property Not Classified. 5. Metal Structure. 6. Heavy Timber Structure 14.16 IGNITION FACTOR (CAUSE) 14.20 BUILDING STATUS CODE 1. INCENDIARY BOILDING STATUS CODE

Description

Occupied: The building is normally fully occupied or is intended to be fully occupied. A lew vacant areas, which are rentable, may exist.

Partly Occupied: The building is in good condition and more than 25 percent of the areas are vacant. Partly Occupied, Deteriorating: The building has some vacant areas and these are expected to remain vacant unit demolition or attention because of the condition of the building or its surroundings. Vacant: The building is entirely vacant. (Even if consistency present) 14.19 CLASSIFICATION OF BUILDING BY USE Incendiary.
 Incendiary, during civil disturbance. COMMERCIAL 592 Bank. 2. SUSPICIOUS 723 Brewery 21. Suspicious. Coal Storage. Department Store. 22. Suspicious, during civil disturbance. 581 Electrical Power Plant, Factory: Multi-Occupancy, Factory: Single Occupancy. 3. MISUSE OF HEAT OF IGNITION 31. Abandoned, discarded material, cigarette, etc. 709 32. Thavring. 709 Foundry. Freight Depot. 33. Falling asleep. 771 squatters are present.)
Under Demolition: The building is in the process 34. Inadequate control of open fire. 35. Cutting, welding too close to. 894 Garage: Non-Storage. of being form down.

Under Construction: The building is under construction and does not have any occupants.

Under Construction: The building is partially occupant, whether under a temporary certificate of 36. Children with matches, lighter, etc. 889 Garage: Storage. Gas Works, Natural Gas Plant. Unconscious, mental, physical impairment.
 Not classified above. 851 Lumber Yard. 573 Motor Vehicle Repair Shop, Paint Shop. cupied, whether under a temporary certificate of occupancy or not.

Note: The status code applies to the building, not the fire area. Therefore, codes t, 2 and 3 may be used whether the fire itself occurred in a vacant or occupied area, and code 1 may apply even at the fire occupied area, and code 1 may apply even at the fire occupied or example, a fice in a vacant appartment being repainted for a new tenanth. The occupied or wacant status of the fire area is now recorded on the "Area of Origin" Code, (see Paragraph 2.19.2) 4. MISUSE OF MAYERIAL IGNITED Office Building, State, City, Federal or Commercial. 41. Fuel spilled, released accidentally.
42. Improper feeling technique.
43. Flammable liquid used to kindle fire. 571 Oil Selling Station. Oil Storage Plant. Pier, Wharf, Dock, Bulkhead Building, Restaurant, Diner Stied, Newstand, Shanty. 44. Washing part, cleaning, refinishing, painting. _ 45 Improper container.46. Combustible too close to heat. 925 781 Shipyard, Drydock. Improper storage. Steam Generating Plant. 49 Nnt classified above.

3

4 14.21 COMPLEX 07 Furniture 08 Furs, Fur Goods 14.24 AREA OF FIRE ORIGIN 11. PUBLIC RECREATION COMPLEX A MEANS OF EGRESS 09 Men's Hats Women's Hats included are zoos, amusement parks and general 01. Hallway, comidor, mali. Exterior stairway. Leather Leather Products 03. Interior stainway. 04. Escalator. 12. STADIUM, EXHIBITION HALL COMPLEX Machine Shop Metal Works Included ballparks, racetracks, sports gardens and 13 14 15 16 17 Paints 05. Lobby, entrance way. 09. Not classified above. Paper Products 14. CLUB COMPLEX Petroleum Products Plastics, Rubber Printing and Allied Industries Included are golf clubs, tennis clubs and country clubs. 1. ASSEMBLY AREA 11. Fixed seats (100 or more persons).
12. Without fixed seats (100 or more persons).
13. With or without fixed seats, (less than 100 persons).
14. Living room, family room, lounge area. 20. EDUCATIONAL COMPLEX Included are schools, colleges and universities, Shoes Textiles MEDICAL CARE COMPLEX 20 21 22 Toy or Doll Woodworking Other Factories not classified (state type) Included are Hospitals, Medical Centers, Memail 15. Sales, showroom area. Institutions. 16. Library, art galleries, exhibit 34. PRISON COMPLEX Store Swimming pool area.
 Not classified above. 40. BUSINESS WITH RESIDENTIAL COMPLEX Auto Accessories 23 Auto Accessories
24 Bakery
25 Butcher
26 Candy, Gigar, Station
27 Clothing
28 Department, targe
29 Department, small (5
30 bry Cleaner & Tailor
31 Drug
31 Brug
32 Fruits and Vegetables
34 Fourniture
35 Grocery, Dairy, Delica
36 Haberdashery
37 Ladies Accessories
38 Laundry included are apartments over store 2. FUNCTION AREAS 41. DWELLING COMPLEX (ONE AND TWO-FAMILY) 21. Bedrooms, patient rooms, cells, lockups. Candy, Gigar, Stationary Clothing Department, large 42. APARTMENT COMPLEX 22. Wards, dormitories, barracks. 23. Dining area, lunchroom, cafet 44. HOTEL COMPLEX Included are motels, inns and lodges. 23. Dining area, lunchroom, cafeteria. 24. Kitchen, cooking area, cloakroom. Department, small (5 & 10) Dry Cleaner & Tailor 26. Laundry area. 28. Health clubs, massage partors, barber, beauty. 47. MOBILE HOME PARK COMPLEX 58. SHOPPING COMPLEX Included are department stores malls, discount houses and shopping centers. Also included are groups of business and commercial establishments which may contain theaters and other places of assembly. 3. FUN AREAS (continued) Fruits and Vegetables 31. Laboratrory.32. Printing or photographic room.33. First aid, treatment room. Furniture Grocery, Dairy, Delicatessan Operating room. 59. OFFICE COMPLEX included are non-military government office 35. Electronic, computer, telephone room, telephone 38 Laundry 39 Paint, Hardware booth. 39 Paint, Hardware
40 Restaurant Luncheonette
41 Shoe
42 Shoe Repair
43 Supermarket
43 Twem
45 Other Stores not classified (state type) Performance, stage area, indoor sports. Projection room, stage light. 61. POWER PRODUCTION COMPLEX Projection room, stage light,
 Process, manufacturing area,
 Not classified above. 63. MILITARY RESERVATION DEFENSE COMPANY 65. FARM COMPLEX 70. INDUSTRIAL PLANT, MANUFACTURING COMPLEX 4. STORAGE AREAS 41. Tank, bin, product storage room. 80. WAREHOUSE, STORAGE COMPLEX 91. CONSTRUCTION COMPLEX Garages: 42. Closet. 43. Supply room.
44. Records storage room, wault.
45. Shipping, receiving, loading mail room.
45. Trash or rubbish container, compactor.
47. Garage, earport, vehicle storage.
49. Not classified above. Non storage Included are demolition operations. 47 Storage 48 Oil Selling Station 49 Motor Vehicle Repair Shop 93. CAMPSITE COMPLEX 94. WATERFRONT COMPLEX included are marinas. Office Building 95. RAILROAD TRANSPORT COMPLEX Warehouse: 96. ROAD COMPLEX Included are highways, streets and all public ways. 51 52 53 54 55 Film 5. SERVICE FACILITIES Paper, Rags, Fibre Other (state type) 51. Elevator, dumwaiter. 97 AIRPORT COMPLEX Electrical, plumbing, ventilation shaft.
 Light shaft. Freight Depot Pier 98. NO COMPLEX If other properties meeting the definition for a complex as defined above are identified, they may be indicated by Complex Code 99: 56 Shippard
57 Lumber yard
58 Shed, Newstand, Shanty, etc.
59 Other Commercial Building Occupancies, not classified 54. Laundry or mail chute. 55. Duct. 56. Display window. 57. Chimney, flue, stovepipe. AREA FIRE ORIGIN 58. Conveyor. 59. Not classified above. (state type) 74.22 FLOOR CODE NO. Residential: Apartment, Hotel, Multiple Dwelling "A" Apartment House, Multiple Dwelling "A" Boarding House, Rooming House, Multiple Dwelling DE OUTSIDE BUILDING 6. SERVICE, EQUIPMENT AREA Service, Education of the American of the Machinery morn.
 Heating equipment, water heater area.
 Switchgear area, transformer vault.
 Incinerator room area. 01 1st Floor to to 94 94th and Higher "B"
Hotel, Multiple Dwelling "B"
Lodging House, Multiple Dwelling "B"
Private Dwelling
Rectory, Convent, Monastery, etc.
Tenement House, New Law, Multiple Dwelling "A"
Tenement House, Old Law, Multiple Dwelling "A"
Other Residential, not classified (state type) 95 Attic 96 Roof Maintenance shop, workshop, paint shop, welding 65 97 Basement shop. 66 67 66. Test cell. 96 Cellar 99 Sub-Cellar 67. Enclosure with pressurized air.
68. Enclosure with enriched oxygen atmosphere.
69. Not classified above. 14.23 AREA FIRE ORIGIN-Public: Publics
70 Airport
71 Cabaret, Banquet Hall
72 Church
73 Dance Hall
74 Hospital
75 Morion Picture Theatre
76 N.Y. Transit System St
77 Passenger Depot
78 Cebrail
78 Cebrail OCCUPANCY CLASSIFICATION 7. STRUCTURAL AREAS, NON-FUNCTIONAL OR MOT IN BUILDING 71. Grawl space, cellar, substructural area.
72. Exterior balcony, open porch.
73. Floor and celling assembly concealed floor/celling COMMERCIAL Factory: 99 Chemcials 01 Dresses Motion Picture Theatre N.Y. Transit System Station 74. Roof and ceiling assembly, concealed roof/ceiling space. 02 Undergarment 03 Other (state type) 75. Wall assembly, concealed wall space, 78 School 79 Theatre 80 I.V. Studio 76. Exterior wall surface.
77. Exterior roof surface.
78. Awring, overhang.
79. Not classified above. Dry Cleaning Laundry Electrical Products 06 Fond and Drink Products 81 Other Public, not classified (state type)

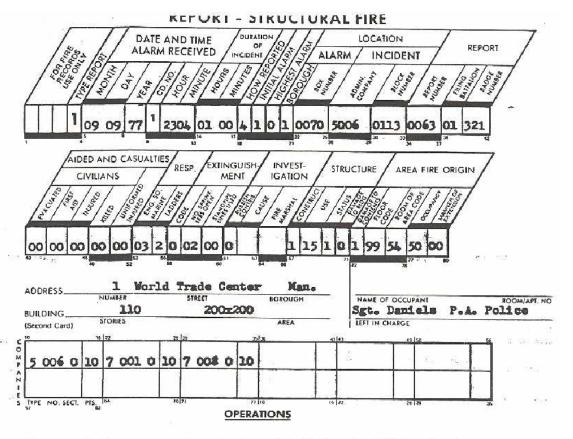
8. TRANSPORTATION, VEHICLE AREAS 14.29.2 Type 06 First Aid—Resuscitation 1. Smoke Marine
Precarious Condition—Signs, Trees, etc. 07 08 81. Passenger area. 82. Trunk, load carrying area. 2. Heat Subway, Railroad 83. Engine, running gear, wheel area. 14 293 Power Source Water Leak 10 84. Fuel tank, fuel line. 1. Battery Bomb—Unexploded, Scare Collapse—Cave In Collision—Vehicular Incident Controlled Fire, Permitted 85. Operating, control area, cab, cockpit. 2. A/C 12 13 86. Exterior exposed surface. 89. Not classified above. 14.29.4 Performance 1. In room of fire: operated 2. Not in room of fire; operated 9. OTHER AREAS OF ORIGIN Flood Condition—Broken Water Main 3. In room of fire; did not operate Incinerator 91. On or near railroad right of way, embankment. Incinerator Leak—Fuel Oil, Gasoline, etc. Leak—Illuminating Gas, Flammable Vapor 4. Not in room of fire; did not operate 17 18 92. On or near highway, public way, street. 5. In room; fire too small to operate 93. Terrace, patio, courtyard. 94. Lawn, field, open area, vacant lot. 6. Did not operate; power source removed 19 20 Lightning Oil Burner 9. Not classified 95. Wildland area, woods. Person Locked In, Locked Out Power Electrical 21 22 97. Multiple location. 14.30 POWER FOR EQUIPMENT 98. Vacant room, apartment or area. 23 Pressure Rupture Refrigerant Leak 01 1-23 volts A.C. 99. Not classified above. 02 24 volts A.C. Smoke Condition, Odor, Furnes 11 1-6 volts D.C. 12 7-12 volts D.C. 14.25 MANNER OF EXTENSION Sprinkler-Leak, Water Discharge, Damaged Head, etc. 26 27 28 29 Steam Discharge
Defective Alarm Device (other then Sprinkler) Code No. 15 115 volts A.C. 00 Confined to area of origin. 28 208 volts A.C. Smoke Detector
Defective Alarm (Sprinkler)—Surge, Work on System. 01 Cockloft.
02 Door or opening between rooms. 30 220-230 volts A.C. 33 231-330 volts A.C. 34 331 or higher volts A.C. etc. 31 Other 03 Floor. 04 Hall, Stairway. 50 25-50 volts A.C. 61 Butane 05 Partition. 14.33 MOBILE PROPERTY TYPE CODES 06 Pipe Recess 62 Coal, Coke, Charcoal, Peat 11 Automobile 07 Shaft-dumbwaiter 63 Fuel Oil, No. 1 or No. 2 12 Bus 08 Shaft-Elevator. 64 Fuel Oil, No. 3 or No. 4 Shaft-air, Light, Chute, Duct, etc. 13 Motorcycle, Snowmobile 65 Fuel Oil, No. 5 or No. 6 14 Motorhome 10 Ceiling. 66 Gasoline 11 Window. 15 Travel Trailer 67 Kerosene 12 Other (state type) 17 Mobile Hom 68 LN gas (stored as liquid) 20 Freight, Road Transport 69 LP gas (stored as liquid) 14.26 NUMBER OF OCCUPANCIES 30 Rail Transport 70 Natural or Illuminating gas (as a gas) 40 Water Transport Codes Description 71 Paper Air Transport 01 1 occupancy 72 Propane 99 Other 60 Heavy Equipment 02 2 occupancies 70 Special Vehicles, Containers 99 Other Mobile Property Types 14.31 CODE FOR TYPE OF ACTION TAKEN 1. Extinguishment 99 99 or more occupancies Rescue 3. Investigation 14.27 BUILDINGS Remove Hazard Code: 0 to 9 5. Standby 0- did not spread beyond building of origin Salvage 1—1 structure or vehicles First Aid 9. Cancelled Enroute 14.32 CLASSIFICATION BY TYPE FIRE OR EMERGENCY 9-9 or more buildings or vehicles TRANSPORTATION NOTE: Form BF-24A must be submitted for each building Code No. or vehicle listed in this coded space. 87 Ship, Vessel 88 Motor Vehicle 14.28 DAMAGE CODES 89 Other Transportation (state type) 14.28.1 Percentage Codes NON-STRUCTURAL FIRES 0 No appreciable damage 1 From 1 through 15% Code No. 84 Explosion, no after fire 2 From 16 through 49% 85 Outside Spill/Leak with Fire 86 ADV (Abandoned/Derelict Motor Vehicle) 3 50% or greater 14.28.2 Extent of Damage Codes: To be used in the Damage Category Boxes "Flame, Smoke and 90 Bonfire 91 Brush, Grass Water". 92 Demolition Wood, Building Site 1. Confined to object or origin. 93 Dump, Land Fill 2. Confined to part of room or area of origin. 94 Rubbish-Outside Building Confined to room of origin.
 Confined to fire-rated compartment of origin. 95 Manhole 96 N.Y. Transit System-Yard, Roadway, Ties, etc. Confined to floor of origin.
 Confined to structure of origin. 97 Railroad Yard, Roadway, Ties, etc. 98 Tunnel, Bridge Extended beyond the structure of origin. 99 Other Non-Structural, not classified (state type) 9 No damage of this type. **EMERGENCY** 14.29 SMOKE AND HEAT DETECTOR CODES Code No. 14.29.1 Present 03 Elevator, Escalator 1 Present 04 Explosives Escort 05 First Aid—Assist Person(s) 0 Not Present

5

Attachment G-A.4

Significant fire incidents occurring in WTC 1 (12)

Significant Fire	Incident Date	Fire Location	# Sprinklers Activated	# Standpipes Activated	Cause of Fire	Material Ignited
1	9/9/77	B-6 level storage room	2		None listed	Not listed
2	9/23/77	Dumpster on B-4 level	2		Not classified	Trash/waste
3	10/16/81	19th floor office area	-	2	Discarded material	Furniture
4	12/23/83	2 dumpsters on B-4 level	2	1	Suspicious	Trash/waste
5	1/27/85	Office space on mezzanine level (Floor 2)	2		Incendiary	Trash/waste
6	9/10/85	Garbage dumpster in service elevator lobby on floor 43	2	1	Suspicious	Trash/waste
7	11/1/85	Storage closet on B-4 level	3	1	Suspicious	Supplies/stock
8	6/7/86	Dumpster fire on floor 106, compactor room on floor 107	2	1	None listed	Trash/waste
9	9/30/91	Office on B-4 level	≥1	2	Discarded material	Trash/waste
10	11/19/91	Electrical closet on floor 93	0	2	Short circuit	Electrical wire or cable insulation
11	7/23/92	Level B-5 at the power distribution panel	0	2	Electrical failure	Electrical wire or cable insulation
12	11/10/99	Computer room on floor 104	3	≥1	None listed	Plastics, electronic equip



Upon arrival at command post was told of fire in B 6 level storage room, operations as follows.

Ladder 1 made necessary furstagation, located fire, vented, overhanled.

Ladder & checked for extension, vented overhauled.

Engine 6 stretched line from standpipe and stood fast.

Fire was extinguished by sprinkler system before arrival.

EN. 4 suppervised operations on fire floor.

Fire Batrole 2 on the scene.

Rudy E. DiGeorgio 2306

TYPE FULL NAME

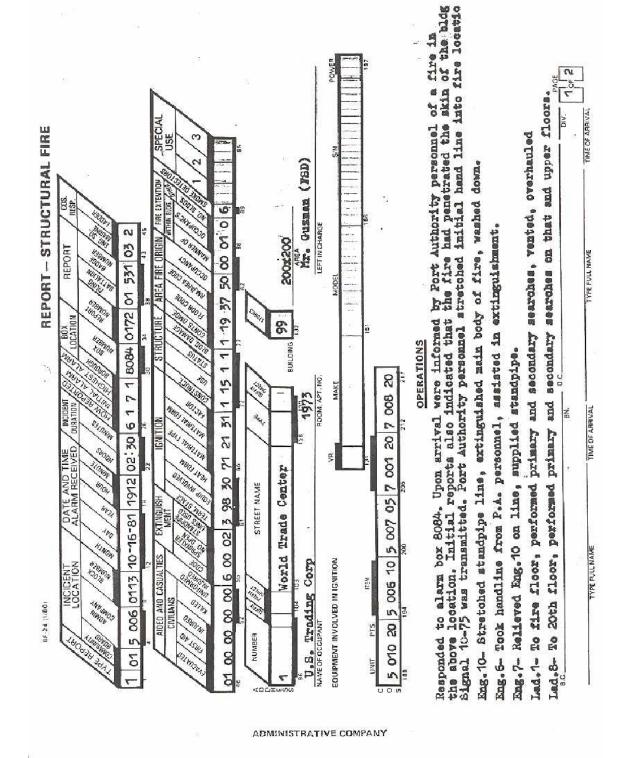
TIME OF ARRIVAL

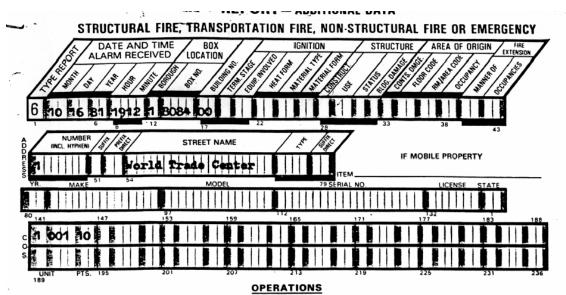
TYPE FULL NAME

TIME OF ARRIVAL

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ALARM RECEIVED INCODENT STATE ALARM IN	
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	54 57
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TYPE NO. SECT. PTS. 141 20(7) 77(10 14)22	
OPERATIONS	
Responded to 3-70-10(Manual Alarm)	
Upon arrival was informed of fire in Dumpster B-4 1	evel 1 WTC. Ordered
investigation and found fire therein, which had bee	n extinguished prior
to the arrival of this dept. Operations as follows:	1 10000-000
E Rolled up lengths stood fast.	
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L.1- Search. examination, ventilation of B-4 level,	conditions as statems
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ADMINISTRATIVE COMPANY





Lad.8 (cont.)- Forced door to Office room#2073

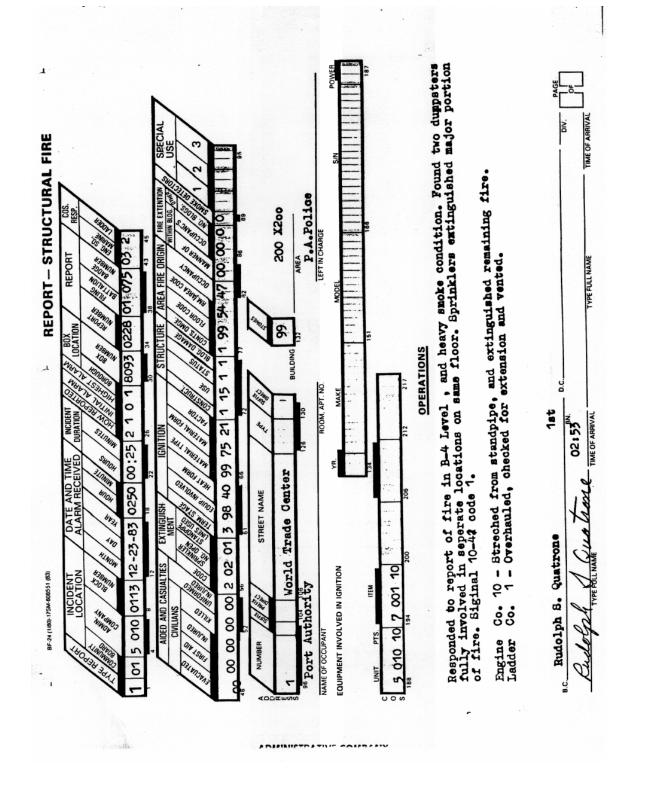
Res.1- Checked vent ducts and stairways on and above fire floor, secured passenger elevators serving fire floor.

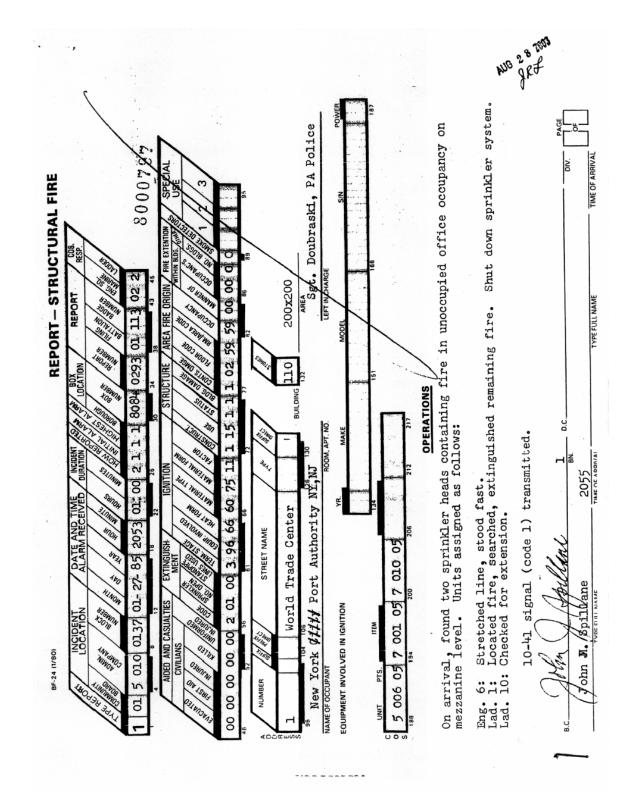
Patrol#1- On scene, salvage work on 16th and 17th floors.

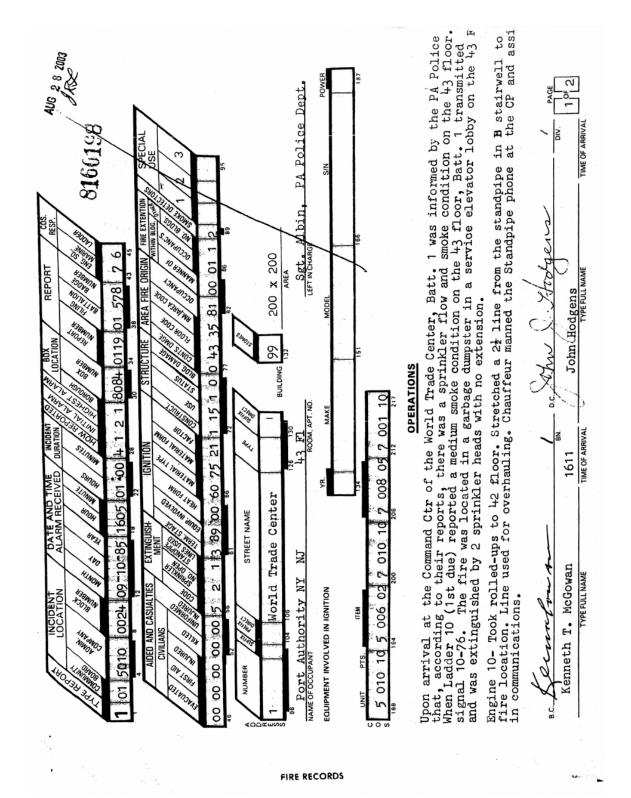
Patrol#2- On scene, salvage work on 18th floor.

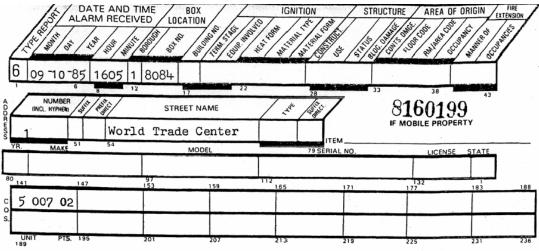
Div. 1- D.C. Rossi on scene, in charge of Department operations upon arrival.

B.C. 1 D.C. 1 DIV. DIV. DIV. DIV. DIV. TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL









OPERATIONS

- Engine 6- (teamed with E.10) Assisted E. 10 in Standpipe stretch.
- Engine 7- Manned the Standpipe phone in Stairway B on 1st Fl., relayed messages to and from Command Center
- Ladder 10- To 43 fl, stairway B, found fire, searched 43 fl (negative) made necessary examination and overhaul of fire area.
- Ladder 1-to 44 fl, searched for fire, smoke extension, searched for troubled occupants (negative) Checked top ten fls (101-110) for smoke (Neg.)
- Ladder 8- Made secondary search of 43 fl (negative). Searched fls 44 to 49. Searched affected service elevator cars #17 & 29.
- Batt. 4- Set up operations post on 43 fl. Communicated with Command Center, supervised operations of units on 43 and 44 fls.
- E.4, E.3 (HiRise Unit), L.15 & Res. Co 1 stood fast, took up.

 Brooklyn Cos responding on supplemental Boxes 9031 & 9032 at 1617 hrs Batt 31,

 Batt 32, E. 205, E.XM 279, L.101, L.110 stood fast, took up.

 F.C.U. Established Field Hqtrs, Monitored Communications.

Sprinkler heads (2) replaced by P.A. personnel.

Signal 10-41, Code 1 transmitted, Evidence of separate, previous fire reported to FM McCaffrey.

Responded to Scene: AC Matthew Farrell, Manhattan Borough Commander

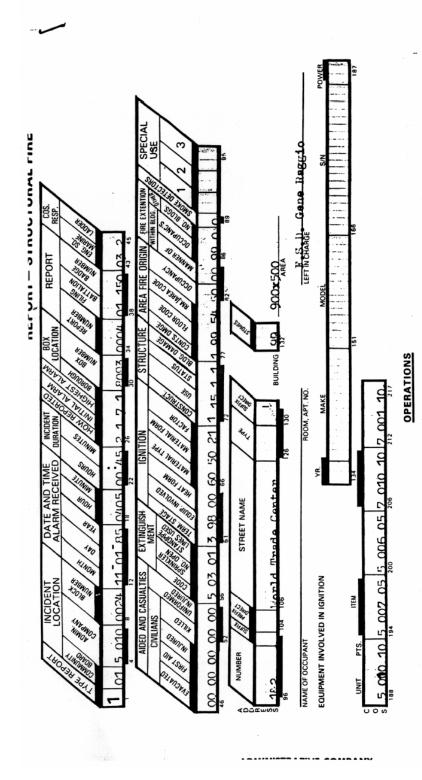
Signal	Time	<u>By</u>
10-84	1609	E. 10
10-76	1615	Batt 1
P.W.H.	1627	Div 1
U.C.	1640	Div 1

R.C. Lecruston 1 D.C. Jun Judgers 1 PAGE

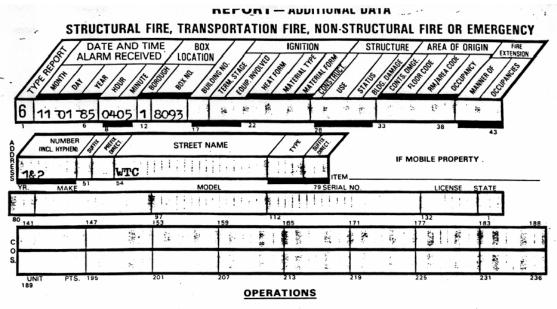
Kenneth T. McGowan 1611 John Hodgens DIV. 2 OF 2

TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL

FIRE RECORDS

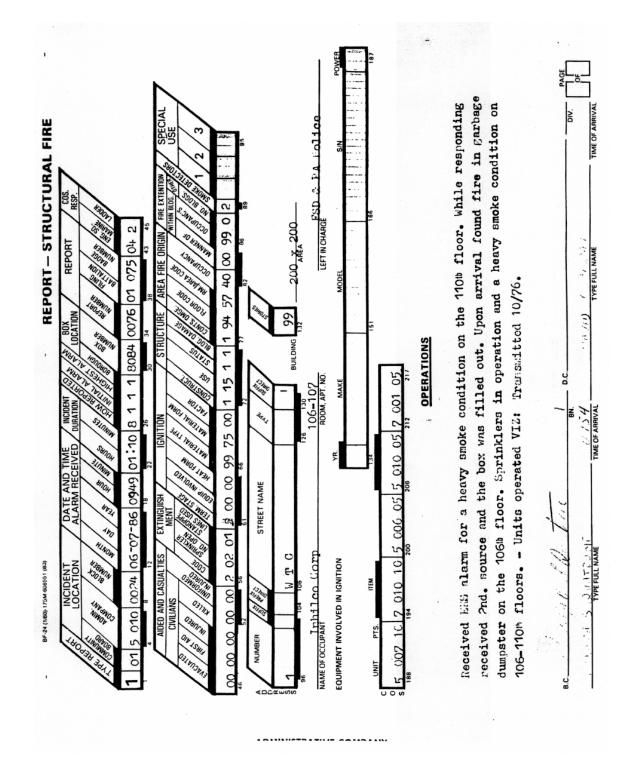


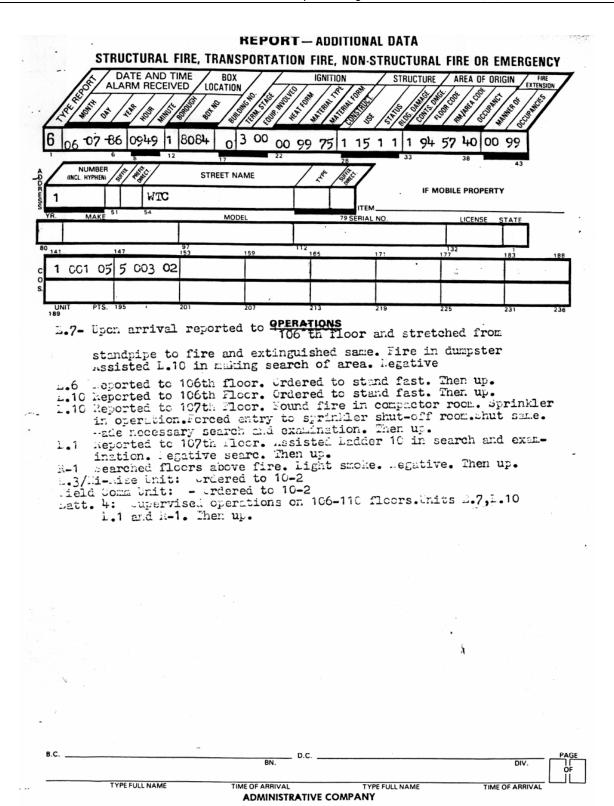
Upon arrival to box 8093, at the World Trade Center complex found the following conditions. Proceeded in area under trade center between nos. 1&2 WTC. Report from companies was for fire in storage closet of mens bathroom in this area , with three sprinkler heads activated keeping fire under control until to W.T.C. Command Post and was informed by Port Authority P.D. of heavy smoke condition on B44 level arrival of F.D. units Co's operated VIZ:

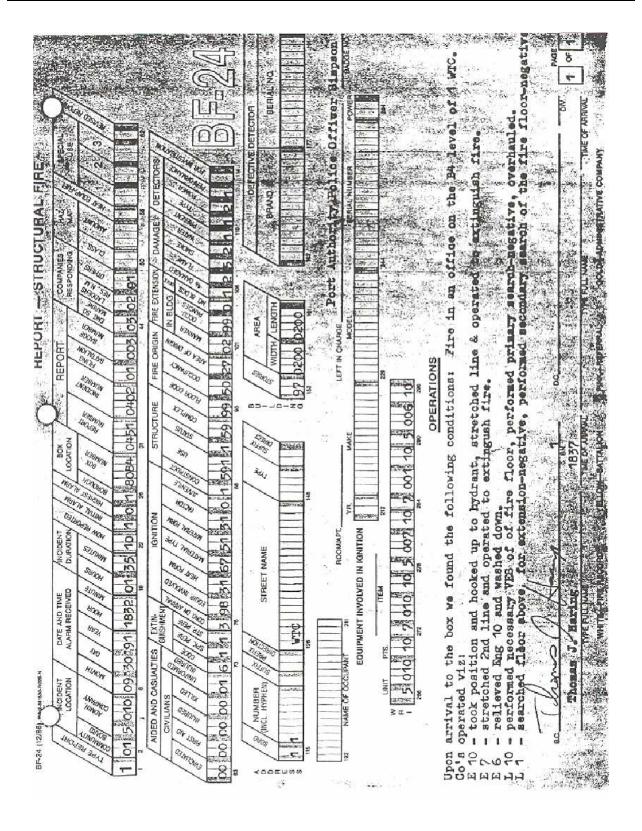


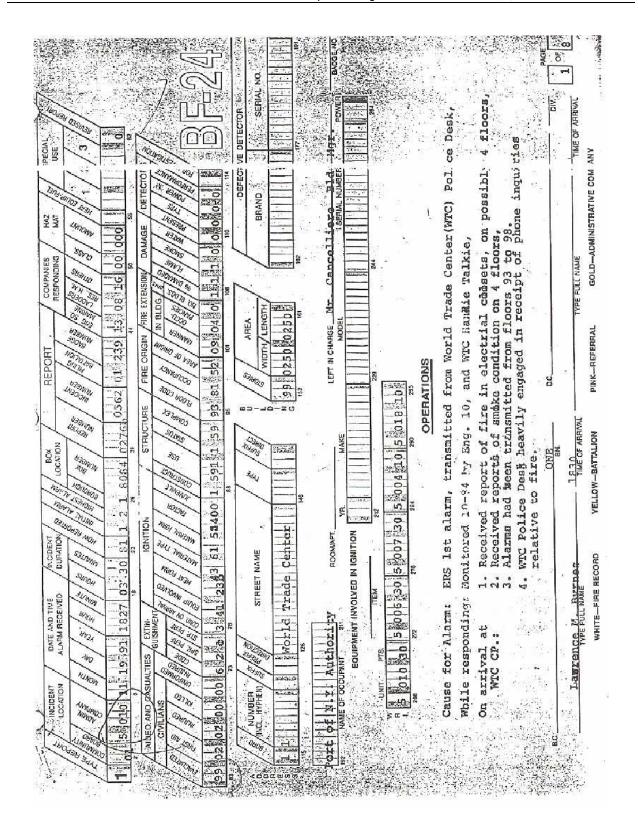
- E-10 stretched line into fire area from standpipe and extinquished all remaining in closet area
- 1-7 Stretched line from opposite side of fire and stood fast
- E-6 assisted E10 in stretching line and relieved on line and then washdown
 - L-10 found fire and performed necessary VES and overhaul in area, made primary and secondary search, then up
 - L-1 performed necessary VES and checked for possible extension in surrounding areas

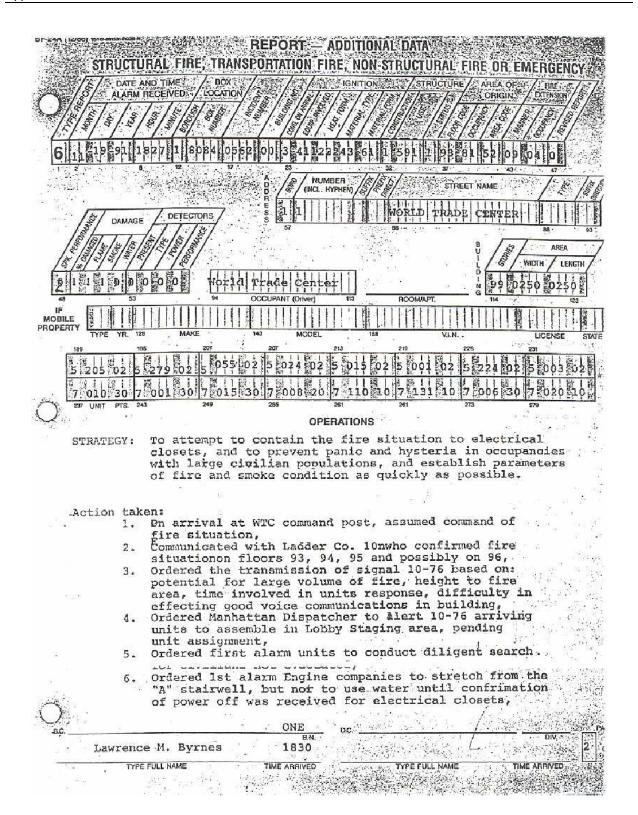
Times: 10-84 0408 10-75 0410 All Hands 0425 10-41-1 0425

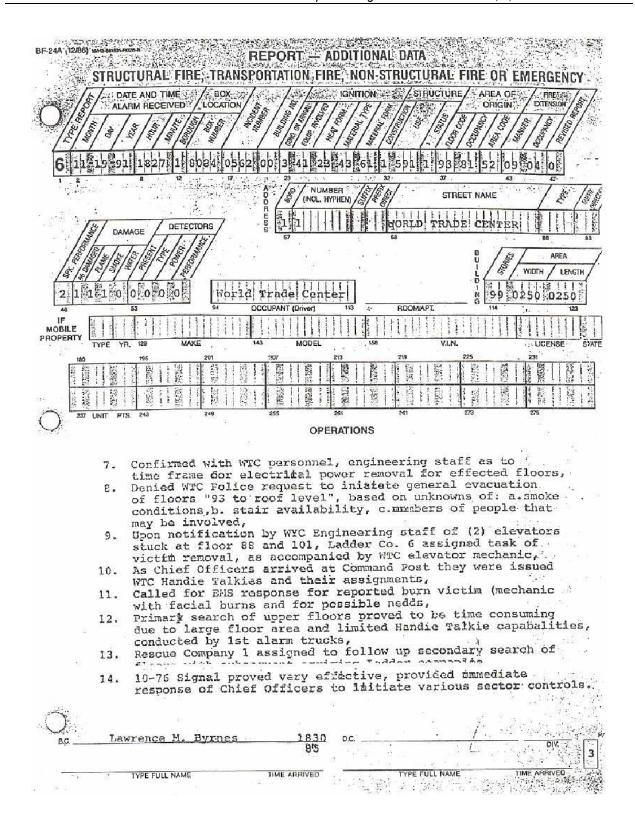


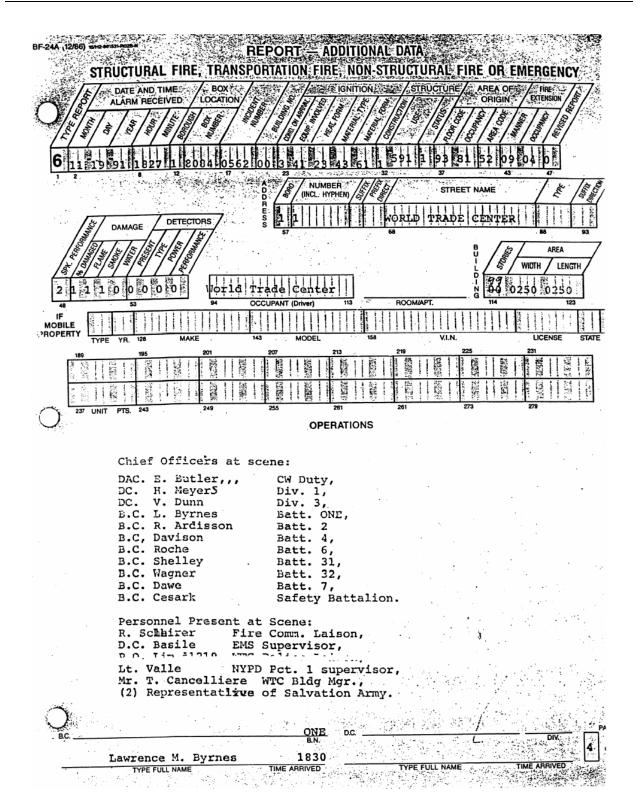


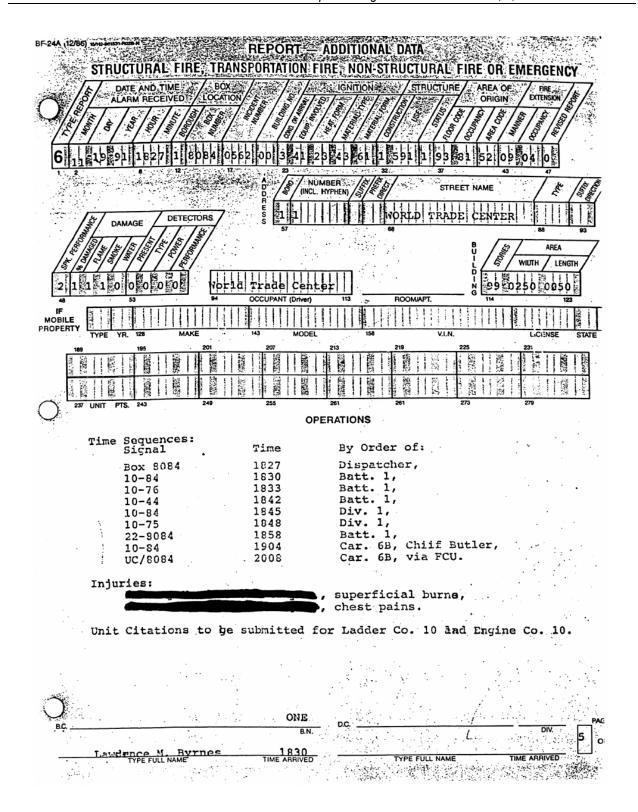


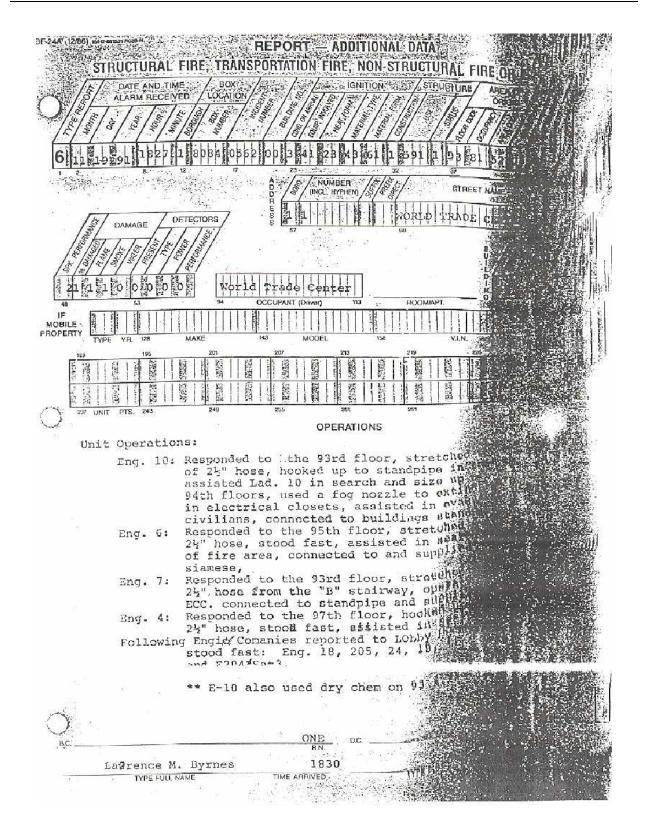


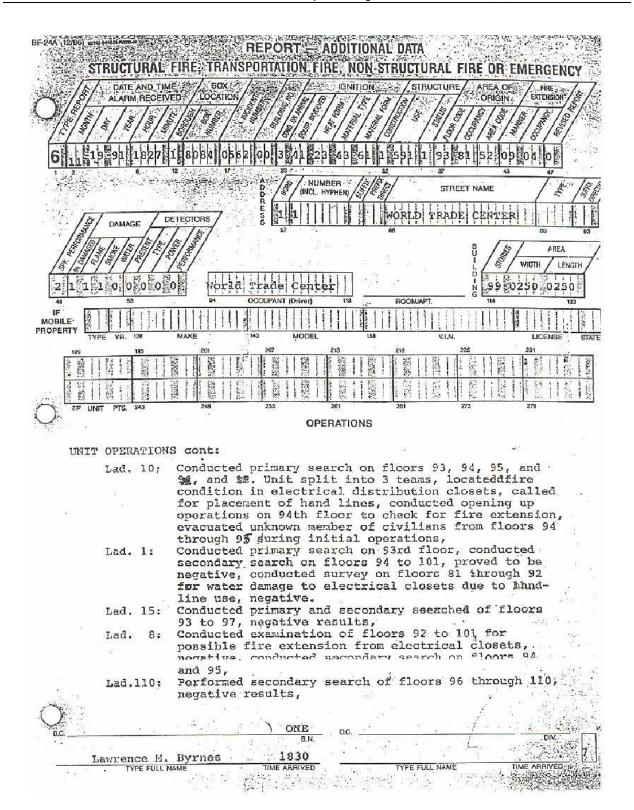


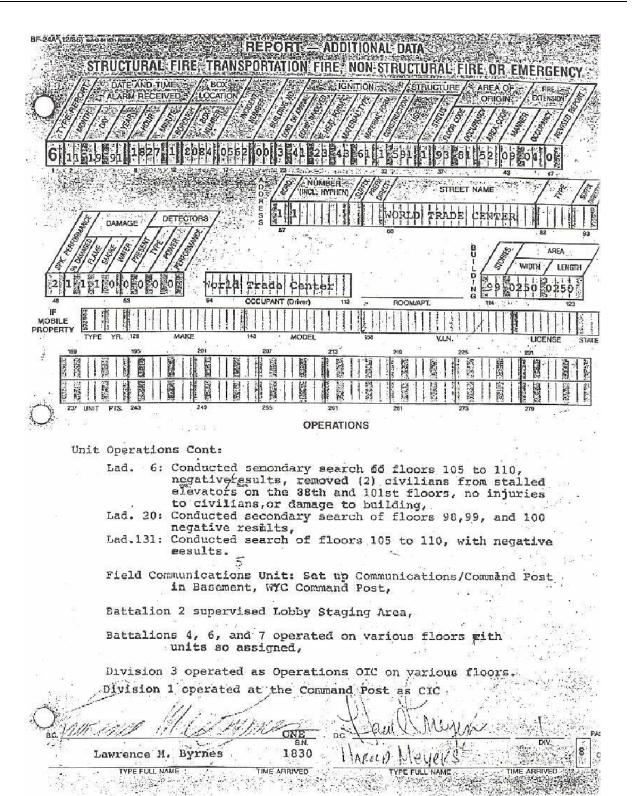


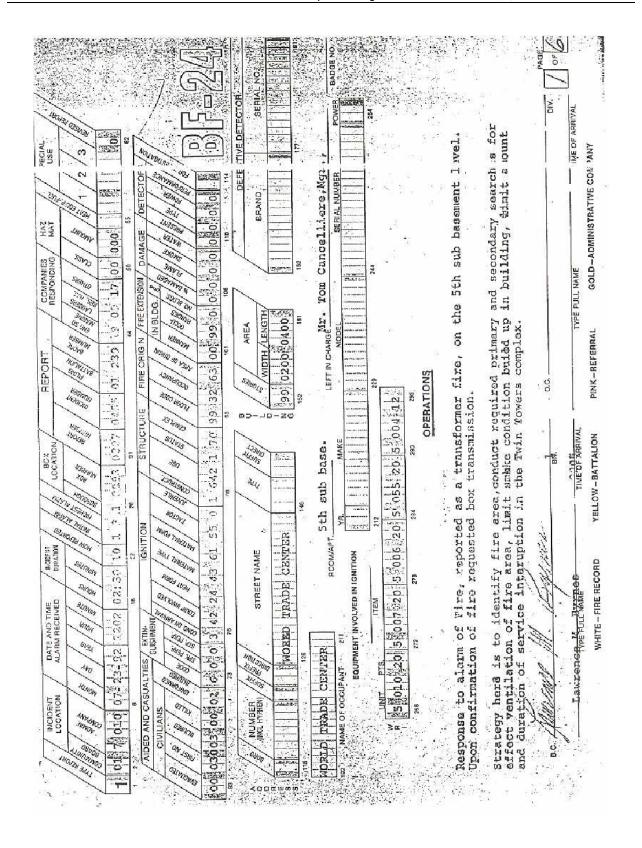


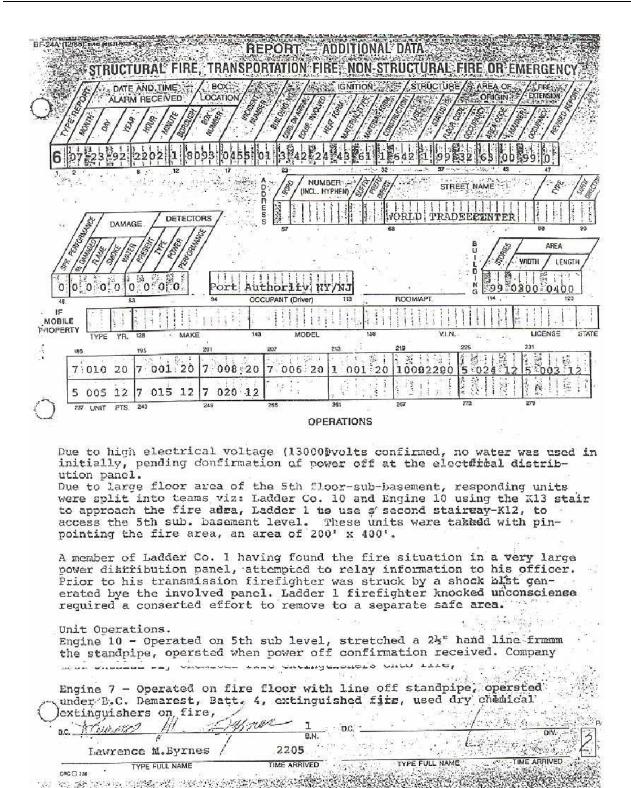




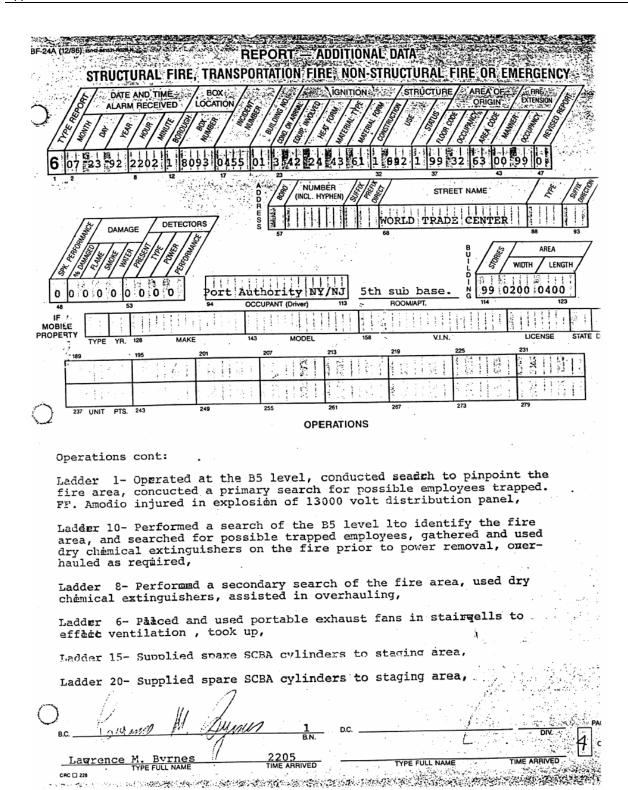


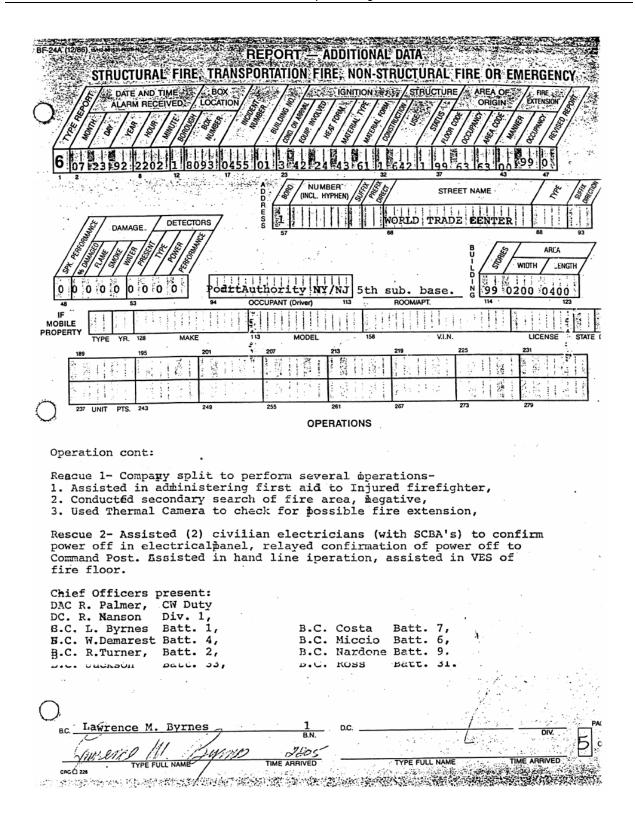


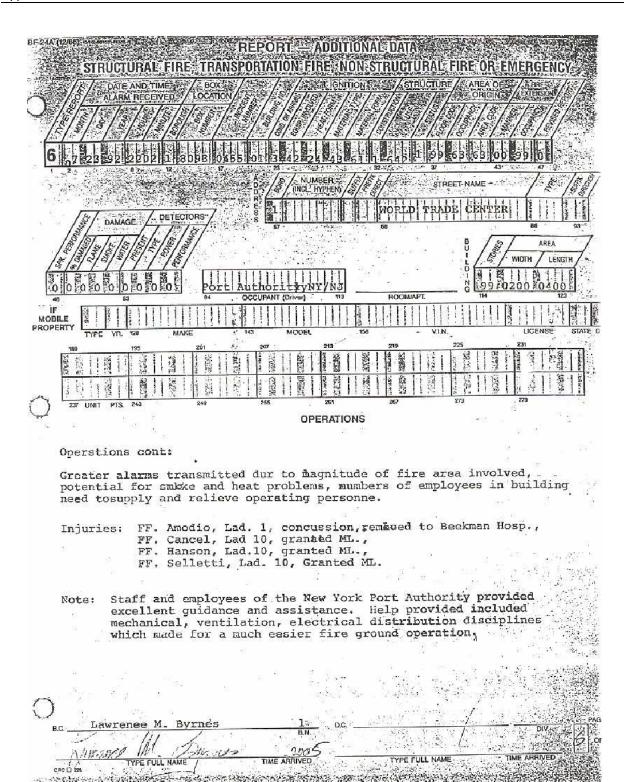


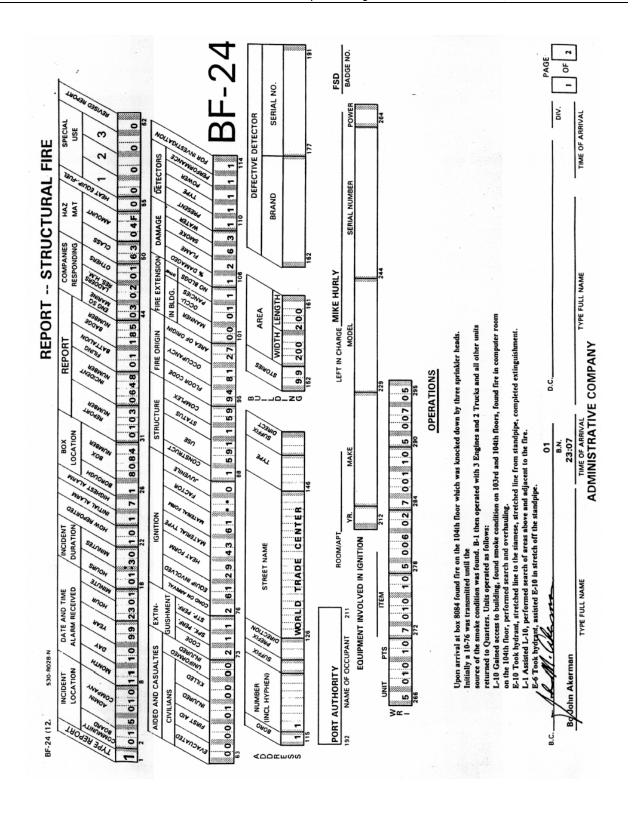


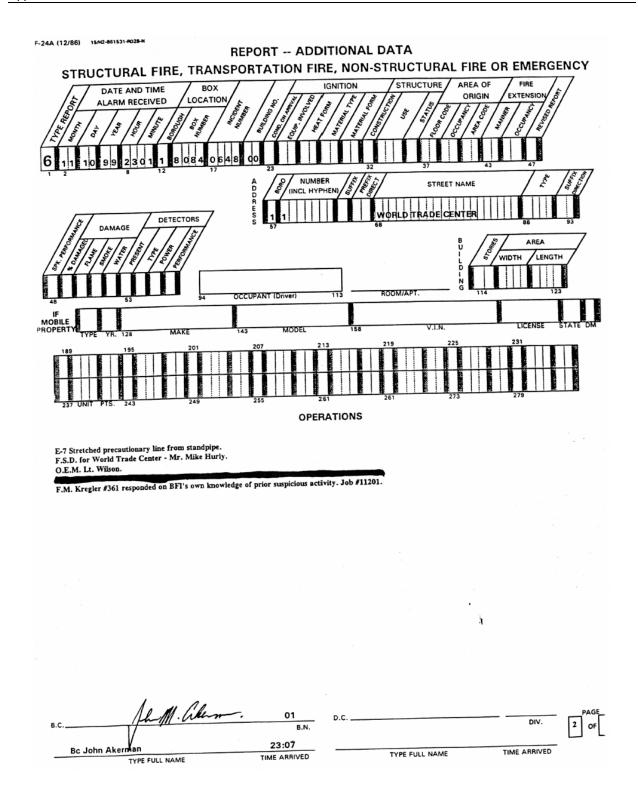
FREPORT — ADDITIONAL DATA: STRUCTURAL FIRE: TRANSPORTATION FIRE; NON-STRUCTURAL FIRE OR EMERGENCY
DATE AND TIME BOXES STRUCTURE AREA OF DATES OF LOCATION STRUCTURE AREA OF DATES OF LOCATION STRUCTURE AREA OF LOCATION STRUCTURE
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TYPE YR. 128 MAKE 189 195 201 207 213 219 225 231 189 227 UNIT PTS. 243 249 255 261 267 273 279
OPERATIONS
Operation cont: Engine 6 - Assisted Eng 7 in stretch of and operation of a 2½" line into fire area, performed search of area, overhauled as necessary,
Engine 55 $\underline{}$ Operated with and relieved Eng. 7 on hand line on fire floor, took up hose lines,
Engine 4 - Under supervision of BC. Turner, B2, transported injured member of Lad. 1 to ambulance on the B1 level of the fire building, relieved Eng. 10 on a Mand line, oberhauled, took up hand line,
Engine 24 - Transported Air Cylingers fire area under supervision of BC. Jackson,
Engine 3 - Ordered to and did provide air cylinders to operating units of the B5 level. Engin Engin
Stood Fast - Eng9Sat1, Engines 15, 28. 33, 34, 207/Maxi, 284/Sat.3,
BC Minus H. Mynus 1 DC. DIV. S
Lawrence M. Byrnes 2205 TYPE FULL NAME TIME ARRIVED TYPE FULL NAME TIME ARRIVED
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Attachment G-A.5

Significant fire incidents occurring in WTC 2 (3)

Significant Fire	Incident Date	Fire Location	# Sprinklers Activated	# Standpipes Activated	Cause of Fire	Material Ignited
1	5/19/75	Floor 32	-	3	Incendiary	Trash/waste
2	4/12/77	Duct work over grill in restaurant on floor 107	2		None listed	Duct work
3	3/22/93	Fan motor room on floor 108	2		Mechanic al failure	Not classified

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)	1/3/3/	0/3/8/9	Sike 81 5-13/	SAILS HOSAY	6946/15 61/	1830/83/	3375
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	(Second Card)			AKEA	LEST, INTERARGE		William Pages
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						2 022 0 1	
	5 024 0 12 5	017 0 12 (001 0 05	7 010 0 30	001 0 20	7 008 0 2	0 2.45
	TYPE NO. SECT. PIS			90°			1,1,5
	77	63	OPERAT	CONIC		and the second second	8. TS
	on 32 floor arr	lval was ir	formed by	Port Authori	river to mon	ised spain	~<∫.d epodittina
	to fire area :	nd onerete	in concret	or confirme a	(20) and E	igine 7 to	o proceed
71Ž	mit immediate	report of	fire condit	dong and te	* radoera	rosand If.	to itrans-
	GT OUS DIALTOTE	THE A GOODING	The Company of the A.	ו אים רודיים - תחתו	1399 A ARRAN		14. 电 电电
	from fire area	of "heavy	fire and c	ismittee 2nd	atarm upor	receipt	of repor
						ire area	involved
	core area thro	or fires in	was confir previous	ted to same.	ara suenect	ed spren	and mana
	Four mine each reported ment alls q	via dispat	cher to fi	re marshal	and same or	dered to	respond.
	E.6(28) Str	u moon se o etched line	eni dreje sto 320 m	od nasomio. Ia statuisti	in Concepts		7.75
	majo	or body of	fire. Then	la stairväy relieved b ornon agab	r E-7	n to exti	nguisn
	nand tibed	ondres. Tre	alo TH bead	digs, souit	hed ficin h	Establia	PUB.
	5-7- Assi:	sted E.O.dr	i stretchin	ริ อักส์ ก็สังลักใ	ning line.	Then stre	stched 2n
	Trife	ve Jenn 11	linders.	And of pagnet	perated to	extinguia DUDITOR	n Tixe.
	detan	r Vi	- 1.	0.0			
B.	C. C. C.	1.00	- sal	2150 hra. 20		Table 12	PAGE
	Charles J. Vot	truba	2140	Roger	Rodriguez E	bas o	Y-
100	TYPE FULL N	AME	TIME OF ARRIVAL		LOTI DOUTS LA		ARRIVAL
\$2.5	EO Berley. E	E certesi	BC Votruba,		n Operatio		15 TeV 15 TeV 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
				WE CONTRACT			4-44W - 1
			VUMMIKHGADYA	WE CUMPTER	A	· · · · · · · · · · · · · · · · · · ·	A 80 1

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DATE AND TIME DUALION / A
                                                                                     MOITADOJER
                                                                            SADARA / INCIDENT
                                                 retched line to 32nd fil Operated to sisted in search. Overhanted Mrs ar
                                                                              in search.
                                                                                                                                                           ed fire areas/2
                                 Forced door to 32nd fl- stairway "C". Operated house hose line to consist in making Search Then operated on 32nd 11.) continuing search Made examination. Then assisted in overnauling. Then relieved by L.
                 L.1- Made search of floors 33.34 and 35.0 Then made examination at 33rd f. for extension off fire MANION MENI MANION MENI MANION TO STATE OF THE PROPERTY OF T
                E.10(Speci called)-Ordered to stand fast at 31st II. Then relieved
                                   hose lines 32nd fl. to assist in everhauling. Then took up lines of
            L.S- (Spec. called)- Assisted in making secondary quarch of corrice occupancies 32nd fl. Then relieved L.10 overheuling fire.
                    Batt.4- Supervised units inttially operating on the 32nd fl.
     Batt.1- Ordered to assist in supervision in fire area. Then relieved Bath
Batt.1- Order to secondary search; examination and overhauling.
                                               Ordered to stand fast, Then made search of 44th fl.
                                    Relieved operating units on the 32nd fl. where necessary.
                                    - Made examination 20th, 40th and 60th fis. (2, WTC)
                   E.17 Made search examination 20,40th, 60th fis (1 WTC)
  L.15- Made search of permineter office occupancies 32nd fb. Then made of 31stiff core areas of 14th ff. Then made final examination of 14th ff. Then made final examination of 5score of 7 edited but (52) of additional burners but deep business hadelfeared because of 2stiff core areas of 15th ff. Then made final examination of 5score of 7 edited but (52) of additional burners but stated business hadelfeared business of 2stiff 4th and 60th fighter 15th for supervised examination is edited and factor of 2stiff and force of additional colored business of additional factor of
 Res. 1- Administrated Administered oxygen to Fr. O. Neill E. 7. Then, made exemination for fire extension around perimeter of fire area and sylven in 131st fire area and
          ease of benines as has judgment sers eros superpumper System Superpumper and Sate 2 ordered to return to otra-
                   deligations of because to otres/rises siv 1200 of earl headers (82)6.3

FOU. Established Field Hotes, monitored HT circuits. Transmitted

Progress reports. Maintained continues to hook up sive them
                 "MSU- Serviced Units, Exchanged 30 cylinders.
                (Figure of Special Calls: 2150 hrs.
                                                                                                                                                                                      2140
                                                                                                                                                                                                                                        Charles J. Vosruba
              water under control: 2257 hrs.
                                                                                                                                                                       JAVIRZA CO BAIL
                                                                                                                                                                                                                                            CHARACTER DEAL CONTRACTOR
                             Chief Officers Operating:
                                                                                                                                                                                                                                                         BG Bagley. Bn
                                                                                                                                                                   BC Votruba, Batt. 1
                                                                                                                                                                      DO Tandan Doke 1
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The standard of the standard was a second	TH OK I STAIK OCTOKAL	LITIKE NO.
ALARM F	ND TIME DURATION SECENTED INCIDENT SECURITY ALARI	
ALARM F		
1 04 12 77 1 1	315 00 30 1 1 0 1 0070 5	006 0113 0058 01 999
AIDED AND CASUALTIES	BESD LEYLING CIDALA INAEZI- LAL	UCTURE AREA FIRE ORIGIN
CIVILIANS	MENT IGATION	
00 00 00 00 00 302	0.02.00.0	0 1107(33) 40(00)
ABDRESS 2 World Trad	Le Center Kan STREET SOROUGH	Windows on the World Rest.
BUILDING 110	400 x 400	NAME OF OCCUPANT BOOM/APT, NO.
(Second Card) STORIES	AREA	LEFT IN CHARGE
7 001 0 05 5 006 0	5 2 2 2 3	
a de la companya de l		
S TYPE NO. SECT. PIS. 154	OPERATIONS	20129

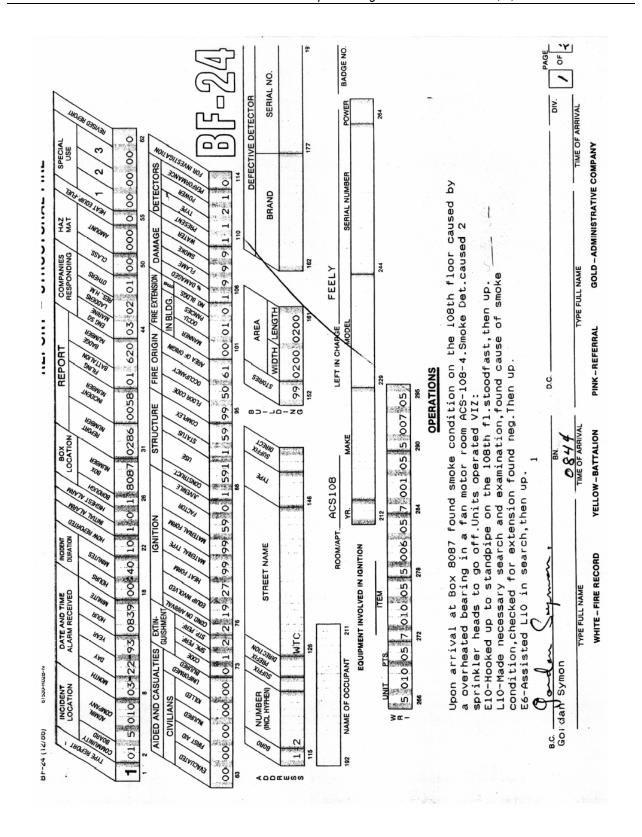
On arrival found fire to be extinguished pryor to arrival;
Fire was located in duct work over grills in in reaturant on 107 th
floor, Bn. 1 notified dispatcher to notify board of Health of possible
food contamination from heat smoke and gasas in restaurant.

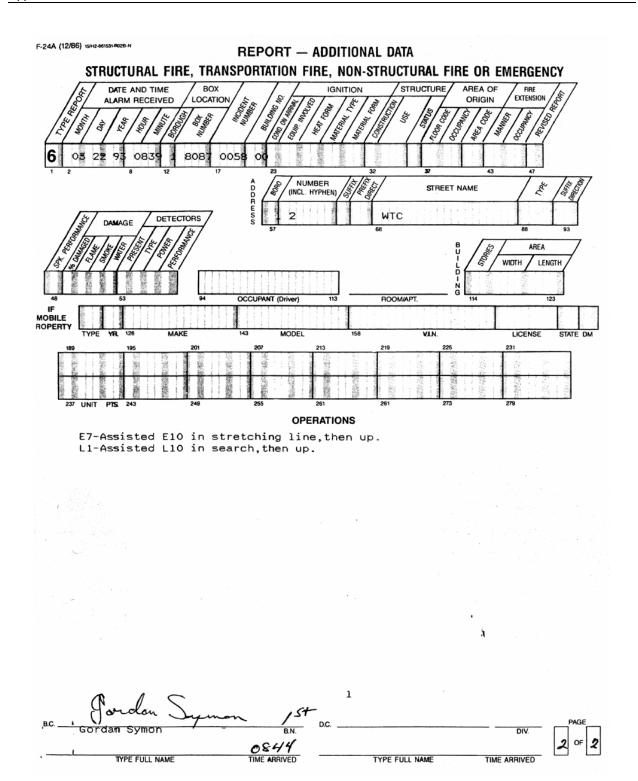
- E. 6 Took rolled ups to 107 floor, stretched line and stood fast.
- L. 1 Made necessary search and investigation.
 - F.P. 2 on scene replaced two sprinkler heads.

ABC Williams M. Feehan - 1318

INTERFULL NAME

THE OF ARRIVAL TYPE FULL NAME

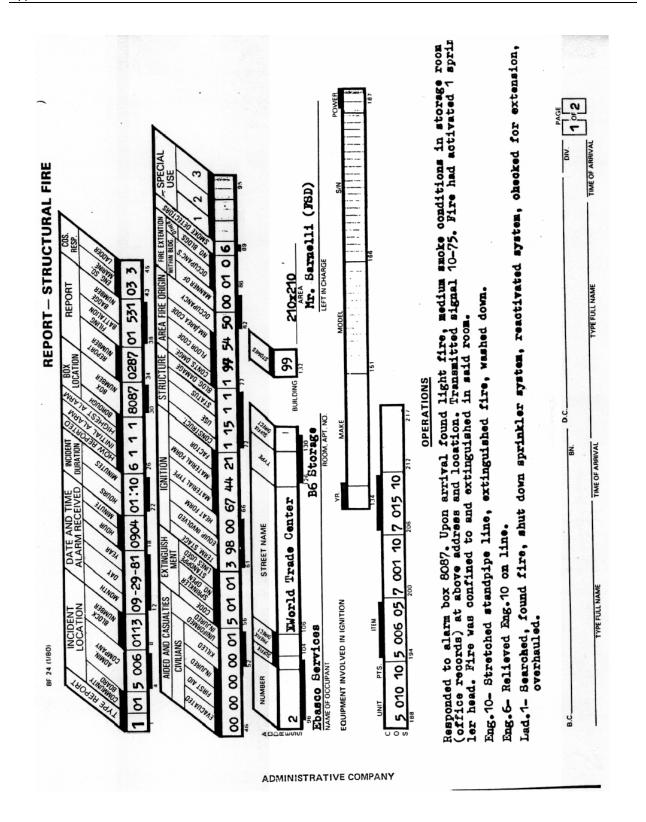


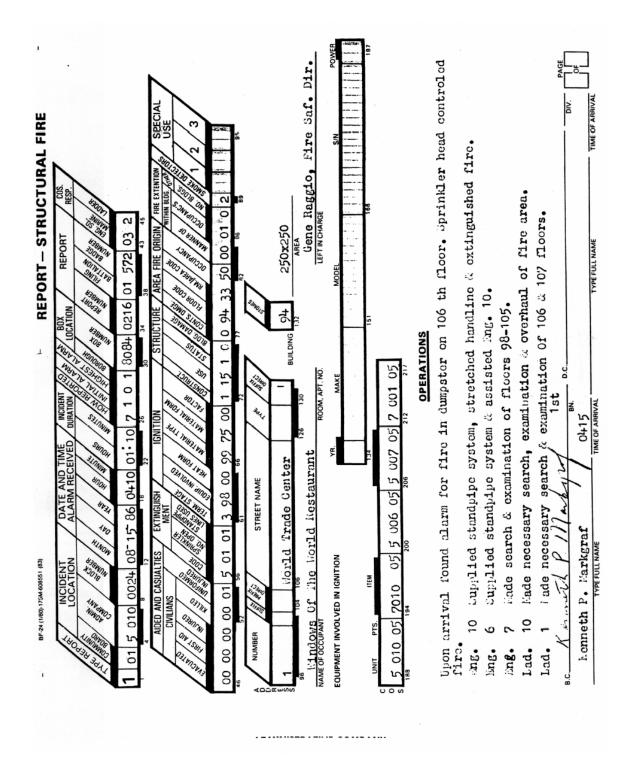


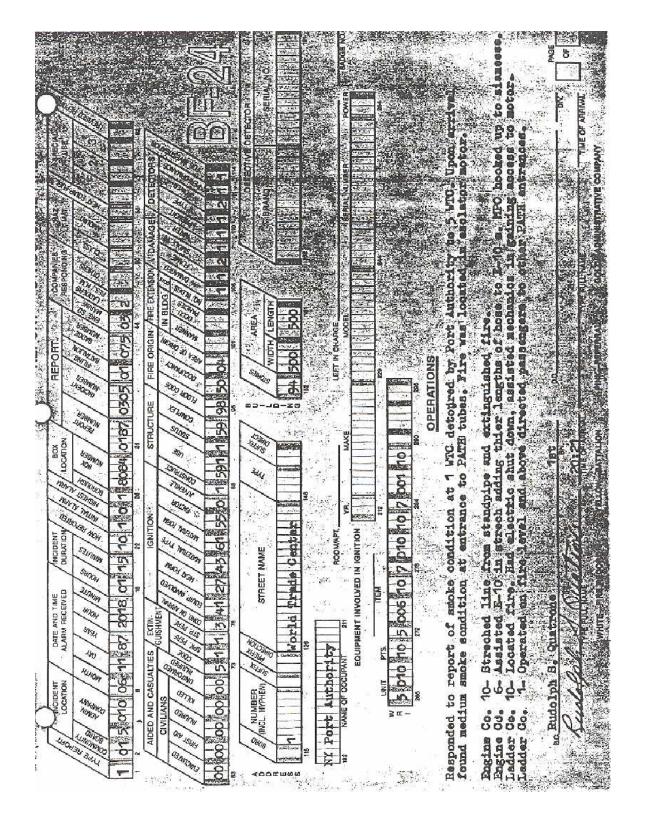
Attachment G-A.6.1

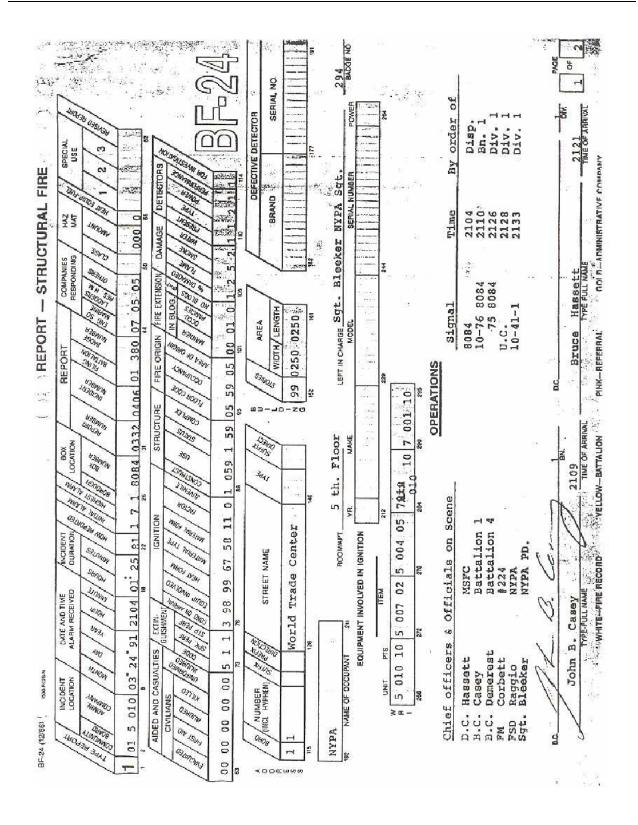
Additional fire incidents involving the deployment of standpipe lines in WTC 1 and WTC 2 -

• Fires involving the use of one standpipe line and the activation of one sprinkler (4 in total)









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Attachment G-A.6.2

Additional fire incidents involving the deployment of standpipe lines in WTC 1 and WTC 2 -

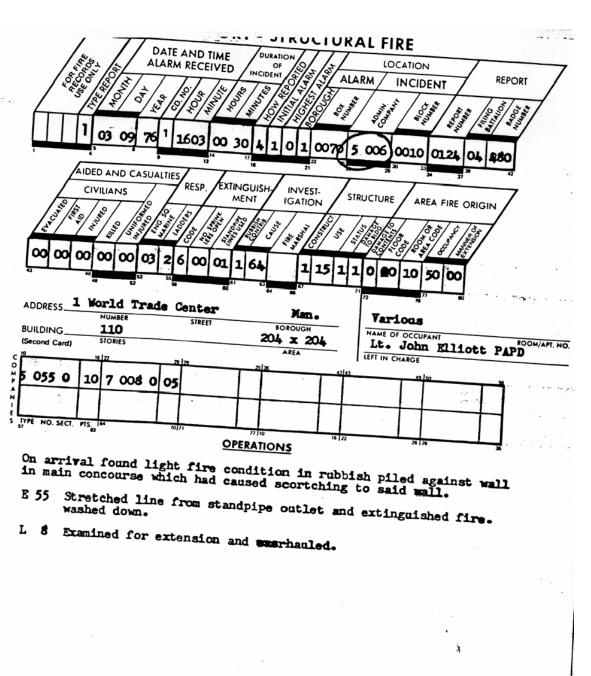
• Fires involving the use of one standpipe line (27 in total)

ALARM RECEIVED AND THE STORY AND THE STORY SEPORT
/S/3/3/A FARMY INCORNI
1 05 24 73 0310 01 20 2 1 1 1 0067 7 010 0033 0068 01 365
MOTO AND CASUALTIES
CIVILIANS RESP. EXHINGUISH INVEST: STRUCTURE AREA FIRE ORIGIN
00'00 00 00 05 2 6 00 01 0 64 1 1 15 1 1 1 0 09 47 50 00
ADDRESS 1 World Trade Center Man, Warld Trade Center NAME OF COCUPANT ROCK AFT
Mickey Seebeck - Superv. Engr.
BUILDING STORIES (Below Grade) AREA LEFT IN CHARGE PA - Lt. Newman #21
5 006 0 10 5 007 0 02 5 027 0 02 5 010 0 02 7 010 0 10 7 001 0 0X
S TIPE NO. SECT. PIS. OPERATIONS
On arrival found fire in elevator car (J3) - B2 level, -J-4 area -
Heavy shoke condition in adjacent areas, B-2 level. Light smoke cond.
in Consourse, on 19th, 38th & 78th floors and various other floors. Fire was confined and extinguished with 1 house line and one F.D. hand
line from standblpe. Areas involved with stoke were searched occurant
assisted where required. Operations as follows: E6- stretch line from standpipe J-4 area, ext. fire in elev. & shaft.
E7 - assist E6 in stretching handline. E10 - made search upper floors - 77th to 79th(light smoke cond.)
E2/ - made search upper floors - 36th fl. & vic.
L10(L18) - report to CP - search & examination of concourse area. L1 - forced elev. door B-2 level, examine ear, overhaul.
B2 - supervise operations of E6 & L1 opening elef. car door & ext. fire B-2 IME level (284)
\sim \sim \sim
Juli Hickory Classic - hard 1
Frenk L. Picariello 0312 John J. Hart
THE DE ARRIVAL THE DE ARRIVAL THE FULL NAME THE OF ARRIVAL

DATE A TIME OF OF ALASM / INCIDE	NT / REPORT /		
1 06 15 73 2015 00 45 2 1 0 1 0067 7 010 0033	1 1 1		
CIVILIANS / / MENT / IGATION /	CTURE AREA FIRE ORIGIN		
00 00 00 00 01 05 2 9 00 01 1 64 1 1 5 1 1	1 06 57 50 00		
ADDRESS 1 World Trade Center Manhatta:	Unoccupied 6518		
	NAME OF OCCUPAN: POCH.AF		
BUILDING 110 200x200	Security Guards		
5 006 0 10 7 010 0 10			
5 006 0 10 7 010 0 10			
S TOPE NO SECT FIS			
<u>OPERATIONS</u>			
Upon arrival found fire in rubbish in room	6518 On the 65th. floor,		
fire confined and extinguished Fire was in an	unoccuried office of bldg		
E.6: Stretched line off standpipe extinguish	ed. fire, had taken rolled		
ups to 65th. floor.			
L.10: Overhauled, make necessary examination,	ventilated.		
On Scene: Fire Patrol #2.			
Injured Member: Fr. 1st. Vincent Segretto #9050 Lad. 10, twist right knee			
Dr. Schwarts notified.No	time lost.		
	•		
Thems Pik 1-4 2 oc felis	1 Start Grad 1 PAGE		
	Hart 2/2/ 0		
THE PARTY HAVE UP ARRYAL HIPE N	IL NAME TIME OF ARRIVAL		

TARREST MARKET HEFORI - SIRUCIURAL	FIRE THE PROPERTY OF THE PARTY
DATE AND TIME DURATION OF ALARM RECEIVED INCIDENT ALARM	LOCATION REPORT
1 0-1-7:1 904 11-10 (11) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	21010032 0090 010 999
CIVILIANS RESP. EXTINGUISH INVEST STRU	CTURE AREA FIRE ORIGIN
od od od od od od o 14 e co ou 15 et oe 1 u 17 e u s	
2 World Trade Center	Port Authority
BUILDING STORIES STORIES STORIES	Nr. Sarnelli(Fisesaftey Dir) LEFT IN CHARGE
5 5 007 20 5 027 12 5016 120 2	001 20 7 003 30
5 TYPE NO. SECT. PTS. [64 70]21 71 10 16 22	
Product Alarm Class 3-70-4	
On Arrival proceeded to the 5th. floor, smoke above.	
E6 took in rolled-up lengths and masks, proc loth. floors, then checked 21st, 22nd, and E-7 found fire, rubbish burning of foyer of 5t	Olse 1100rs
line taken from standpipe. L10- examined and overhauled, checked lith t L.1- checked following floors, 9, 10, 11, 61st and	e 17th. floors for smoke.
control. E_27- checked 10th and 11th. floor and assiste	
L-8- checked the 80th thru 99th. floors. L-15- checked 190th thru 110th. floors.	- ver e e e
Deputy chief Hart was on scene. BC. Whitney supervised following Cos. L.1-,L.:	10. K.7. R. 27(Batt. A)
one of the de the de the contraction	
Fire was also found on 49th. Floor, Extinguist checked out by E.7. Pire Marchall Peritti Cafire.	lled, because of suspicious
Charles in Blaich 100	8 8
BN.	PAGE DIV.
Charles M. Blaich 0907 John J. Har	
TYPE FULL NAME TIME OF ARRIVAL TYPE	FULL NAME YIME OF ARRIVAL
te start in the	
19 TO 19	

16/721-400-10207417-1	RUCTURALI	IKE WAR	4
DATE AND TIME OF ALARM RECEIVED INCIDENT	ALARM	INCIDENT /	REPORT
			SO S
1 10 23 75 1 0308 60 25 4 1	译 ·	00033 0181 01	L
AIDED AND CASUALTIES	21 25 28	29 34 37	
CIVILIANS RESP. MENT	INVEST- STRUC	TURE AREA FIRE ORIGI	N
2 (6 00 00 00 00 03 2 6 00 01 3 64	111521	132303000	a tradition makes a design of the same
# 2 World Trade Center	Manhattan	Port of N.Y. Au	thority
ADDRESSNUMBER STREET	80ROUGH 50x250	NAME OF OCCUPANT Fire Safety Dir	ROOM/APT, NO.
BUILDING STORIES (Second Card)	AREA	LEFT IN CHARGE	
10 10 10 10 10 10 10 10 10 10 10 10 10 1			BI
5306 0 05 71010 0 05			
	क्ष करण । एक्स प्रमुख ।	3 3	
S TYPE NO. SECT. PTS 144 OPERA			
Responded to Class 3-70-4			
Upon arrival found fire in plante extinguished as follows.			
E.6 - Carry in rolled up lengths, operate on and extinguish i	hook up to	S/P outlet, stressary wash down.	ctc line and
L.10 - Make necessary examination burnt debris on 32 floor.	of 32 and 3	3 floors and ove	rhaul
		•	
		S	•
72 Ta	£ _{p.c.}		PAGE
BN.			DIV.
Fergus J. McDermott #2	L TYPE	FULL NAME . TI	ME OF ARRIVAL
			3 to



tamley Hirschfield 1608

TYPE FULL NAME

TIME OF ARRIVAL

THE THE TENT OF TH	***
DATE AND TIME DURATION LOCATION REPORT OF ALARM RECEIVED INCOENT STALARM INCIDENT	
	-A -\$≠
10520 76 1618 00 40 1 1 0 1 0070 5:006 011 008 01/104	٠ •
AIDED AND CASUALTIES RESP. EXTRIGUISH INVEST. STRUCTURE AREA FIRE ORIGIN	
	11日ですっ
ADDRESS 1 World Trade Centre Han. NUMBER SIREE BORDUGH PART OF OCH ADDRESS IN ROOM/API NO	新州等一
BUILDING Tower B 110 4300 X 300 Mr. Sarnell1 F3D Second Card) SIGRIES AREA LEFT IN CHARGE	大きり
5:007:0005 5:006:0 02 5:021:0 02:	100 m
S TIPE HO. SECT. PIS OF TOUR S	一大農林学生の
On arrival was not (Clad by W. C.	0
On arrival was notified by Mr Sarmelli of a rubbish fire on the 79 floo south west Quadrent tower B .	r Contract
E. 7 Responded to 79 floor stretched line from standpipe, extinguished fire	
E. 6 Stretched line and stood fast in fire control center area.	P
E. 24 Stretched line and stood fast in stairway in lobby area.	The second
L. 1 Performed necessary search, ventilation, and over haul on fire floore	の記憶を
L. 8 Stood fast with tools and masks in stairway at lobby.	è.
Ip pared P.O. Keely (port Autority Police) # 1501 removed to Beekman Hospital Public ambulance paparent, ampke inhalation.	ı
Theodore A Campbell 1620	
IIME OF ARRIVAL	では

小野市などと、 い

ALARM RECEIVED	LOCATION REPORT
888 8 2 1 1 1 1 1 1 2 2 3 3 3 3 3 3 3 3 3 3 3	
	06 0113 0158 01 531
AIDED AND CASUALTIES RESP. EXTINGUISH INVEST-	CTURE AREA FIRE ORIGIN
00 03 07 00 00 03 4 0 00 01 1 62 1 15 1 1	0 46 31 50 00
ADDRESS 1 World Trade Ctr Han	Port of N.Y. Authority hallw
BUILDING 110 250 x250 (Second Card) STORIES AREA	Richard Hintsen (Fire Safety D
5 006 0 20 5 007 0 12 5 024 0 12 1 001 0 10 7	001 0 20 7 008 0 20
7 015 0 10 10 10 10 10 10 10 10 10 10 10 10 1	Ja (29) 38
Responded to 3-70-2 (Merus) Alarm)	9 1

Responded to 3-70-2 (Manual Alarm)

While responding Batt.1 notified via dept. radio of special call additional Ladder Co(L.15) due to report of fire 46th fl. Upon arrival was informed of fire 46th fl public hallway near freight elevator. Ordered investigation a nd found fire therein, which had been extinguished prior to the arrival of this dept. Evacuation instituted by Port Authority personnel prior to arrival of Fire Dept. units. Report of smoke detector operational of the 103rd fl. Fire located between freight elevators 49 & 17.

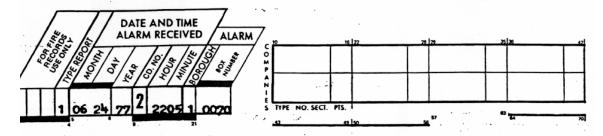
- E.6- Rolled up, lengths to the 44th fl. Connected to standpipe therein and stretched to fire floor(46th) Washed down fire area for overhauling purposes.
- E.7- Assisted in stretch, then ordered to search, examination of 53rd to 58th fls. Also Checked 45th fl. report of smoke condition.
- E.24- Reported to secondary command post (Then ordered to check of 53rd to 56th fls. Also checked out smoke detector 103rd fl.

Matthew J. Mc Kenna TIME OF ARRIVAL TYPE FULL NAME

BF-24A (6/76)

REPORT — Additional Data

Structural Fire, Transportation Fire, Non-Structural Fire or Emergency



OPERATIONS

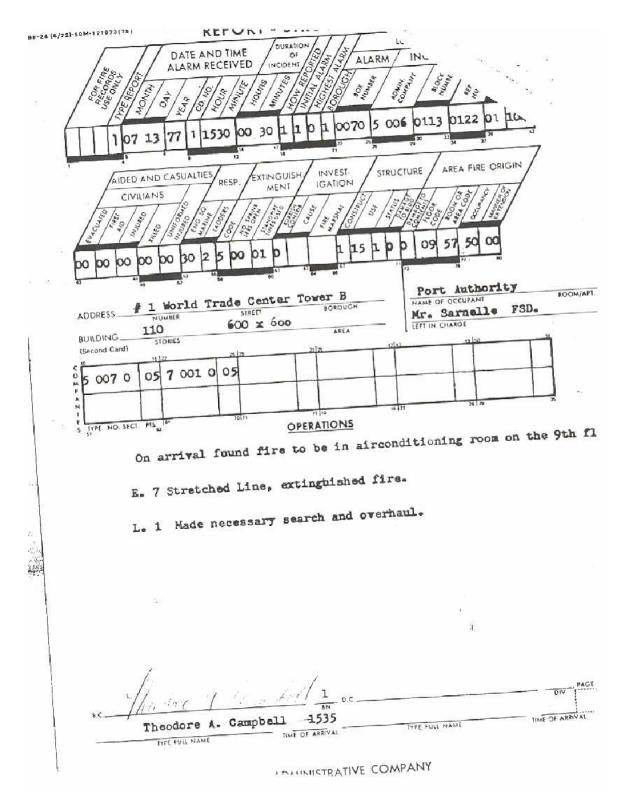
- L.1- Initially to the fire floor (46th) operated for overhauling search & examinations ventilation of same. Then search, examination & ventilation of the 107th to 46th fl. Stairway "B".
- L.8- Initially to secondary command post. (West St). Then ordered to check 78the to 60th fls search & examination. Also assisted in overhauling fire floor (46th)
- L.15- Special called to report to West St. Then trough lobby to secondary command post. Enroute found (2) civilian cleaning personnel(female) had been removed to lebby suffering smoke inhalation. Performed first Aid on injured civilians. Then relieved by Res. 1 with resustitator Then xxx ordered to serachg47th to 52nd fls as (2) injured civilians reported to have worked on the 48th & 50th fls.
 - Res.1- Relieved L.15 and administered first aid(Inhelation)to injured civilians. Then ordered Office r & remainder of members went to ingestigate report of smoke & people on the 55th fl. Thense down to 46th fl. Search, examination of floors enroute.
 - Batt.1- Initia lly in command, thenordered to Recommand set up additional command in lobby, as first aid station. Two public ambulances standing by with (4) resuscitators. Directed search operations of E.7, L.15, Res. 1. Ordered smoke purge 45th to 107 when fire was out.
 - when fire was out.

 Batt.2- Ordered to supervise units on the fire floor & report conditions therein. Supervised in part operation of E.6, L.1
 - Batt.32 Ordered to supervise operations of units above fire floor.

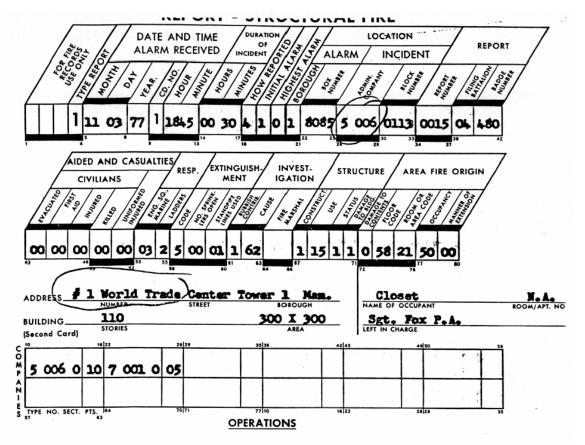
Div.1- In overhauled command of operations at command post B.1 level.

| Div.1- In overhauled command of operations at command post B.1 level.
| Div.1- In overhauled command of operations at command post B.1 level.
| Div.1- In overhauled command of operations at command post B.1 level.
| Div.1- In overhauled command of operations at command post B.1 level.

Additional Data Structural Fire, Transportation Fire, Non-Structural Fire or Emergency DATE AND TIME ALARM RECEIVED ALARM **OPERATIONS** Act Asst Chief Munk on the scene to supervised overall operations. L. : checked all elevator wax ca rs before leaving scene. Ordered 10-41 Code 1 due to report from Port Authority police of labor trouble with Maintainence personnel (Temco) Dept. Photgra pher ordered to scene to take pictures of fire Alarm was turned in by Mr. Nick Cappola, Temco Maintainence (2) Beekman Ambulances on the scane under Mr. B. John Injured Civilians: **≱**Name Address Injury Treated Beekma Smoke inhal. & Released Bmoke inhal. Smoke Inhall Received 02 nc Note : All of the above are employees of the Temco Co. Sgt. Steve Fox Bd# 264 Burn to Fingeers Rt Hand. Ptl A. Halicker Burn to Rt Wrist Ptl Meyers Smoke inhal Ptl. Carcaic Smoke Inhal. Note: Police members of Port Authority Police Dept. All injured treated at Beekman Hospital & released. ADMINISTRATIVE COMPANY



KEPOKI - SIEUCIURAL FIRE	
DATE AND TIME DURATION LOCATION ALARM RECEIVED INCIDENT	REPORT
1 08 04 77 1 1105 00 20 4 1 8 3 0070 6 00600113 0070	HS 84
AIDED AND CASUALTIES	
AIDED AND CASUALTIES EXTENGUISH INVEST. STRUCTURE AREA FIR	E ORIGIN
	11 E-6
	W TO THE
ADDRESS 1 World Trade Center Men. Various NUMBER STREET BORDUGH NAME OF OCCUPANT	BOOM/API NOS
STORIES AREA LEFT IN CHARGE	109, P.A.P.D.
C	
5,006.0 05 7,001.0 05 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图 图	
S TYPE NO. SECT. PIS A SOLD SOLD SOLD SOLD SOLD SOLD SOLD SOLD	
On arrival found fire in accumulated rubbish in elevator 1	lobby
of 35th floor which had caused scortching of the walls and Port Anthority personnel had extinguished fire with hand e	l celling.
and standpipe hose. Fire termed suspicious by P.A.PD.	
E 6 Responded with rolled- up lengths, hooked-up to stand	ipipe and
stood fast.	
L 1 Searched, examined for extension and overhauled.	
in the second	
en A A	
	1
oc ABC James Hallemant & oc	PAGE
James Hallinam 1110	DIV. 1 00 1
TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME	TIME OF ARRIVAL

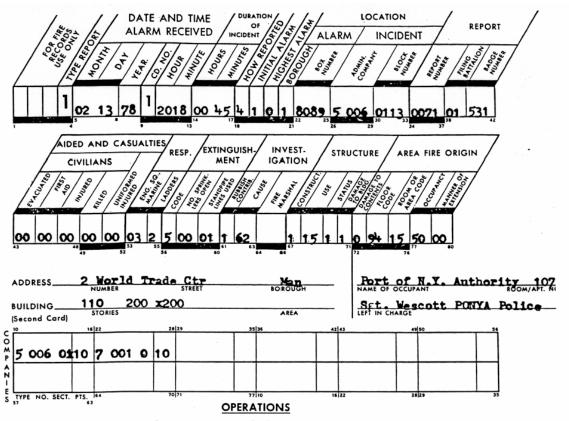


On arrival found cause of alarm to be fire in janstorial closet in volving rags and rubbish. Batt 4 requested a 10-41 Codel Fire caused searing of paint on walls and ceiling.

- E-6 Stretched rolled up lengths and hooked up to standpipe outlet and extinguished fire.
- L-1 Made examination of walls and ceiling and ventilated as necessary.

Stanley Hirschfield 1850

Type Full NAME Time OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL



Responded to manual ala rm box 8089-

Upon arrival was informed of fire 107th fl. Ordered investigation and found fire in rubbish & maint. materials therein. Batt. 1 ordered additional Battalion Chief to respond on report of definate fire. Batt.4 responde d.

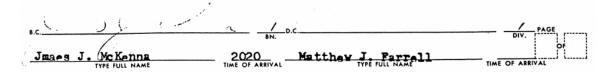
R.6- Rolled up lengths to the fire floor extinguished remaining fire

L.1- Search, examination of fire floor & floor above. Opened walls for examination. Overhauled burned materials.

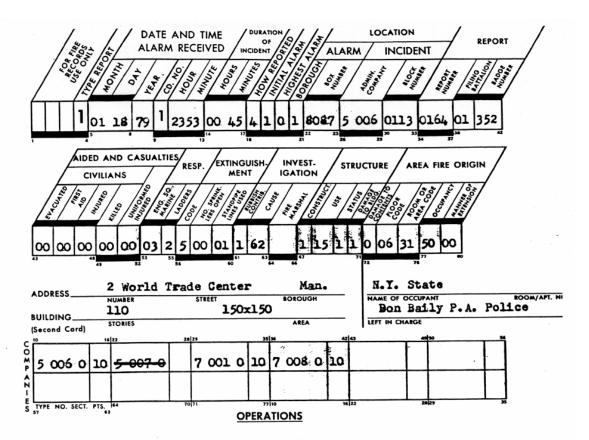
Bn.4- Ordered to supervise operations on the fire floor.

Div. 1- Responded to scene, and assumed command.

Note: Batt.1 transmitted 10-41 Code 2 & requested F.M. to respond.



ADMINISTRATIVE COMPANY



Upon arrival was told of fire on the 6th floor, operations as follows. Ladder 1 made necessary investigation, located the fire, vented, overhauled and searched.

Ladder 8 searched and vented floor above, overhauled.

Engine 6 stretched a line from standpipe and extanguished the fire.

Engine 6 washed down. Batt. 2 on the scene.

Div. 1 on the scene.

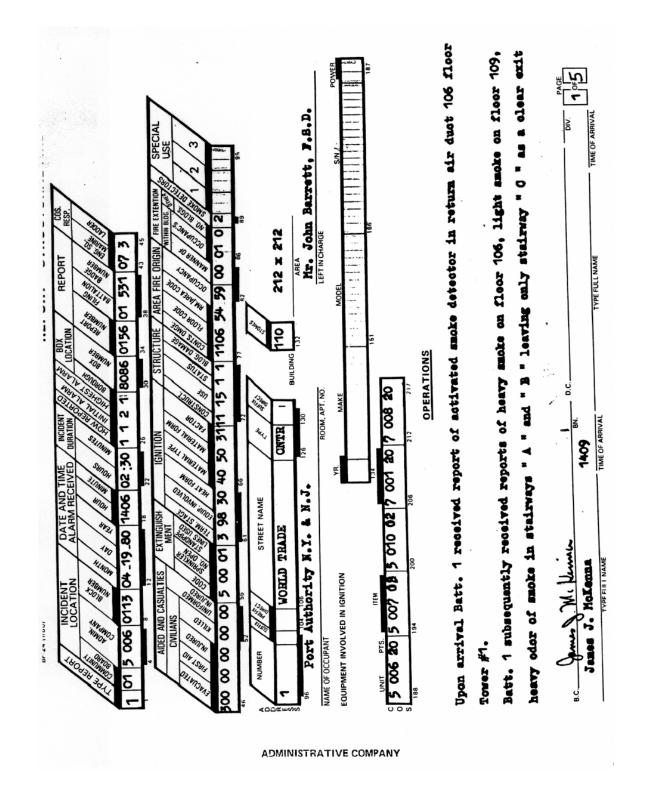
Joseph A. Hingerton 2355

TYPE FULL NAME

TIME OF ARRIVAL

TYPE FULL NAME

TIME OF ARRIVAL

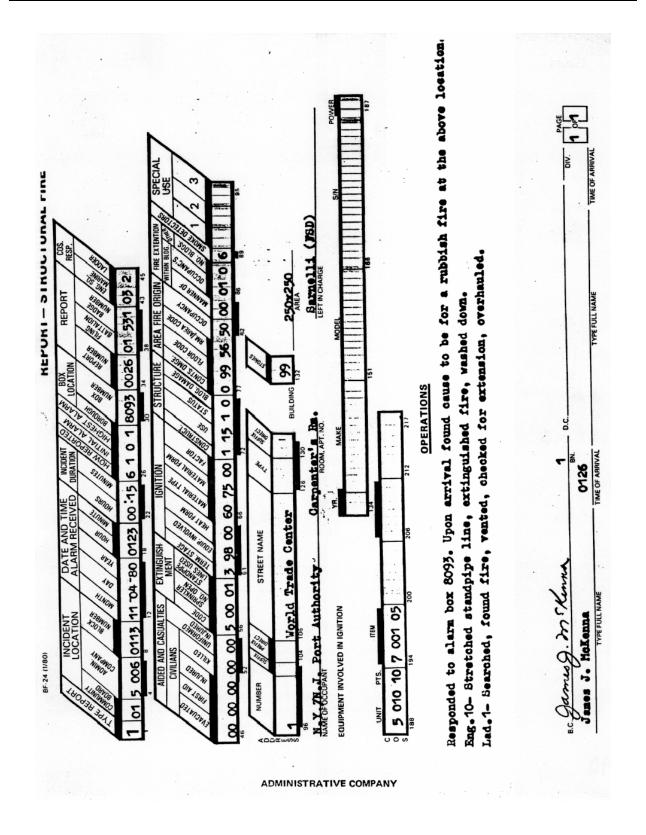


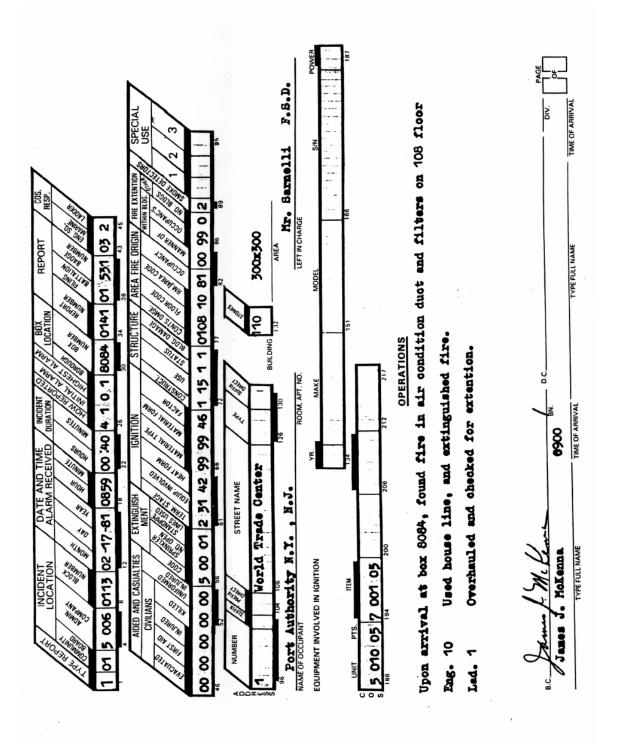
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UNIT PTS. 195 201 207 213 218 225 2313 189 OPERATIONS
from the 107th. floor restaurant. There is an open access stair from
106, opening into 107th. floor restaurant dining area.
At this point fire had not been located. On basis of above, Batt. 134.
ordered approx. 500 persons evacuated from the "Windows on the world."
restaurant " on the 107th, floor via stairway " C " which was clear of
smoke. Later stairway " B " was clear of smoke and was made available for evacuation.
On Arrival of D.C. Rossi, Div. 1 Batt. 1advised Him of above and it
recommended a 2nd. alarm be transmitted, as fire had not been located.
Restaurant was being evacuated and all units were now assigned to work
D.C. Rossi transmitted a 2nd. alarm and requested 2 additional Batt. Chr.
Operations of Cos. are as follows:
Eng. 6 Masks, rolledups, responded to fire floor via freight elevator
to 104 fl. via stairway to 106 fl. Met Lad. 1 who had located fire on
106 II. Hooked & Lengus of Pyz mose of Sweetspaper
B.C. James M. Levins D.C. De
James J. McKenna 1409 TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL
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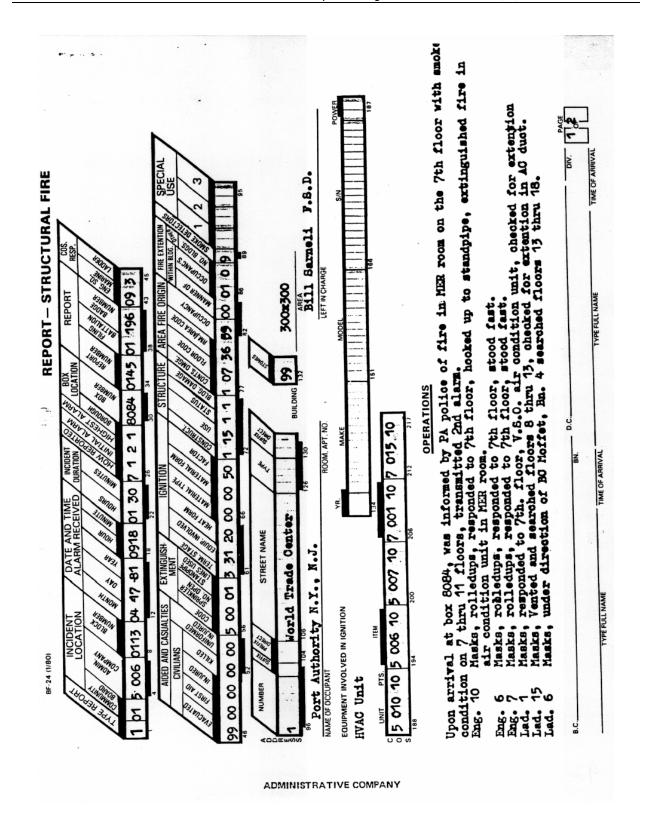
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Operations of Cos. continued:
Lad. 1 to 106 floor to investagate activated smoke alarm. searched
and located fire, checked floor above for extension, and overhalist.
Eng. 7 Responded to 109 fl. to investigate a sprinkler alarm. found
no sprinkler flow, and light smoke condition.
Lad. 8 Responded to 109 fl. with Eng. 7. Eng. 7, and Lad. 8 then reported to 108, 107, and 106fls. made search
and assisted in evacuation of Restaurent.
Eng. 10. Responded to 106 fl. to assist and relieve Eng. 6 on the line.
2nd. alarm units reported to comend post, stood fast then orded to take
up by DAC Glasse.
Rescue 1 responded on 2nd. alarm, reported to 107 fl. assisted in Triv
evacuation of restaurent, then to 106 fl. to assist Lad. 1, then orded
to take up.
James J. McKenna 1409 BN.
TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL
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REPORT—ADDITIONAL DATA
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G D4 4 9 80 140 / 8 1 80 85 10 12 88 50 40 50 1 12 1 1 1 1 1 1 1
NUMBER STREE NAME STREE NAME F MOBILE PROPERTY
VA
OPERATIONS Operations of Cos, continued:
Chief Officers on scene:
DAC Glasse, City wide command Chief.
D.C. Rossi Dept. chief 1st. Div.
B.C. James J. McKenna Chief 1st. Batt.
B.C. Louis Pike Chief 2nd. Batt. B.C. John T. Carroll Chief 4th. Batt.
B.C. Edward J. Miller Chief 6th. Batt.
Field Comm. unit, Lieut. Soranno on scene.
Fire Patrol #2 on scene,
W.T.C. fire safety director Mr. John Barrett on scene. P.A. Patrolmen Cemonuk, and Corbeek on Duty at Command Post.
Building Mechanical System falures noted:
#1 Sprinkler alarm received for unsprinklerd 109 Fl. #2 Return air duct smoke detectors did not shut fans down.
#4 107 floor standpipe phone unreliable due to feed back from radios.
B.C. James M. Cenna Doc Doc Boll Barrell PAGE
James J. McKenna 1409 Type Full Name Time of ARRIVAL Type Full Name Time of ARRIVAL TYPE FULL NAME
(1) White Copy Fire Roburds (2) Canary Copy; Battellon (3) Pink Copy; Administrative Company (4) Goldenrod Copy; Referred

REPORT ADDITIONAL DAVA
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SHALO CONSTRUCTION OF THE PROPERTY OF THE PROP
UNIT. 515 196 201 20) 211 218 225 21 30 OPERATIONS
* High Hise Report prepared and fowarded to Div. of Fire Prevention.
Pollow up on Mechancal and Electrical malfunctions being made with
Port Authority. See copy of High Rise report for details.
James J. McKenna 1409 ^{BN}
TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL TYPE FULL NAME TIME OF ARRIVAL

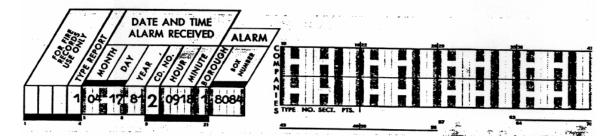






REPORT - Additional Data

Structural Fire, Transportation Fire, Non-Structural Fire or Emergency



Masks, searched floors 18 thru 23.

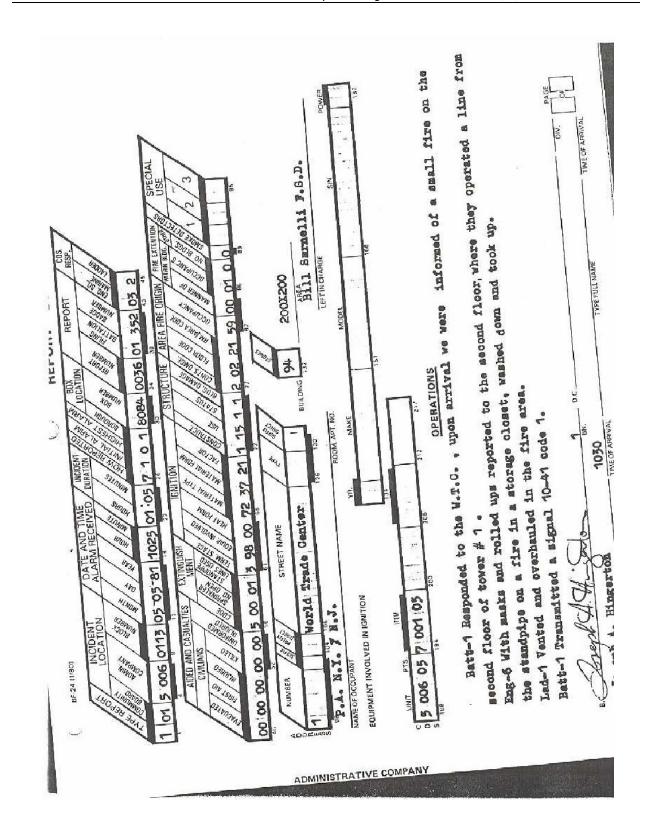
2nd. alarm units: Engs. 24, 15, 55, 9, 241, and Marine 1 were orded to stand fast at the assigned locations.

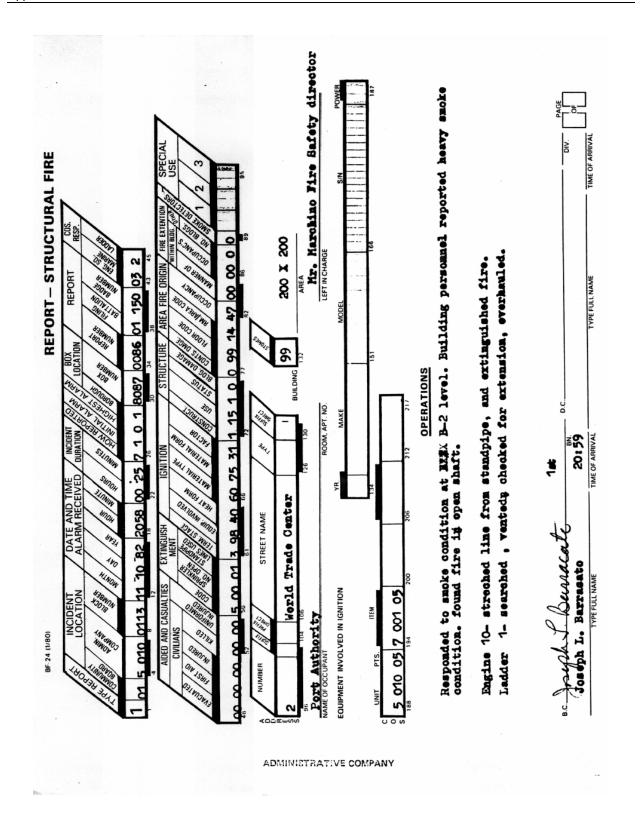
Div. 1, D.C. DeCaprio responded and supervised opperations Chiefs Gormley, Bishop, and Farrell also on scene. P.A. personell reported evacuation of aprox, 1,500 persons from floors 9 thru 23. F.C. unit on scene F.P. 2 on scene.

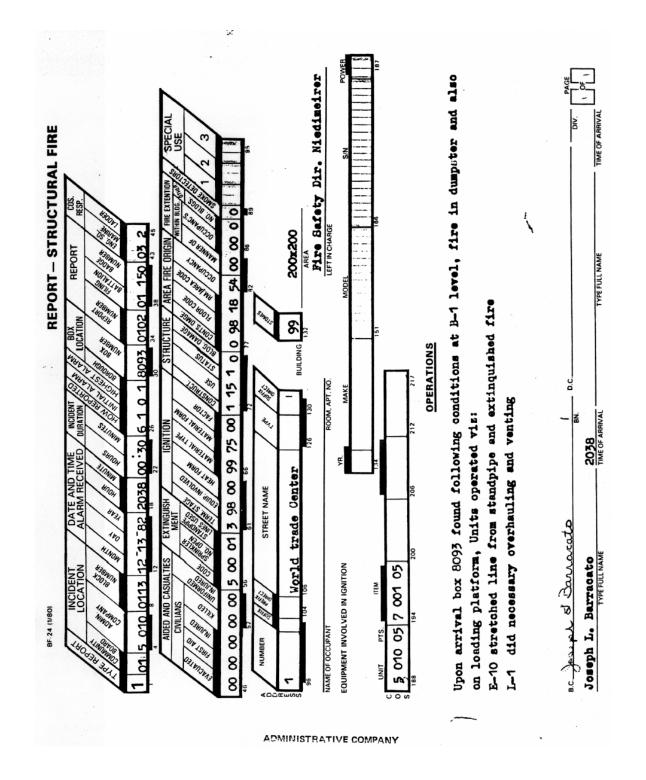
Box 2-2 U/C

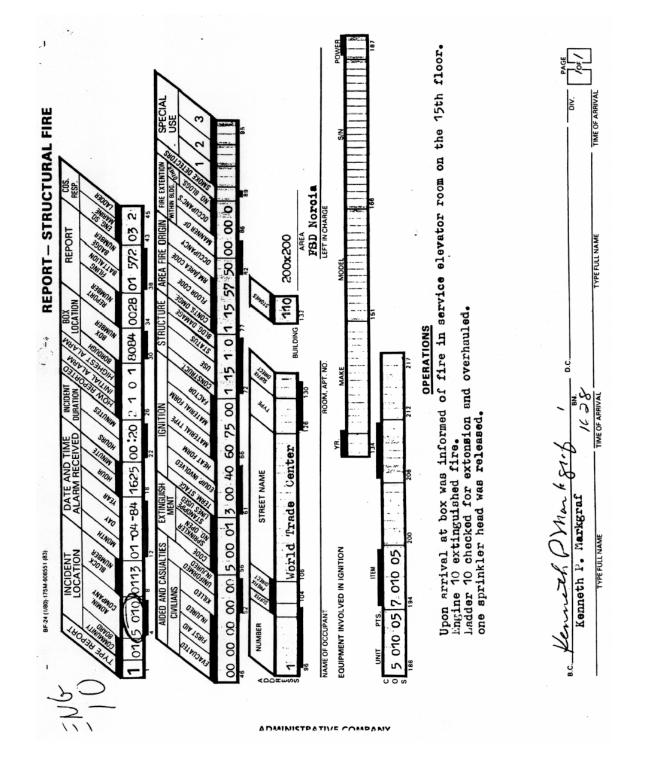
TIMES

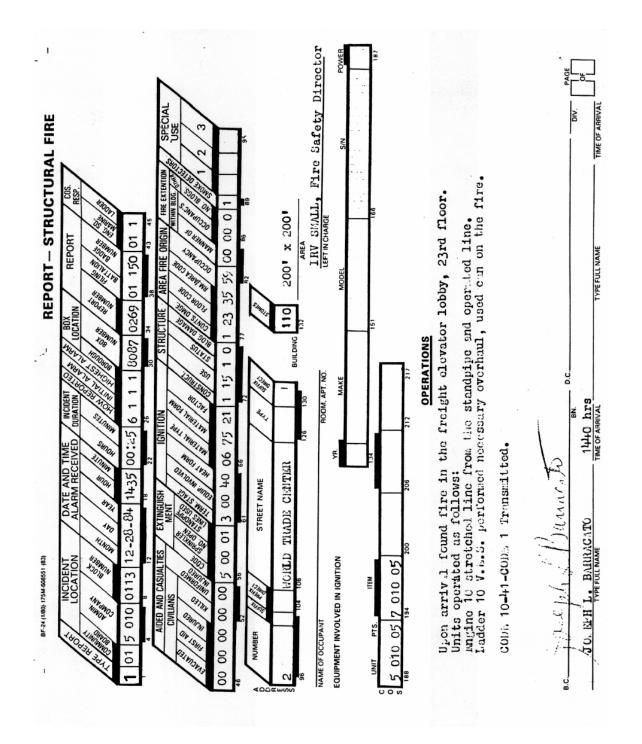
Peter Catello			
Peter Costello	0920	Angelo DeCaprio	DIV. 2 of 2
TYPE FULL NAME	TIME OF ARRIVAL	TYPE FULL NAME	TIME OF AREIVAL

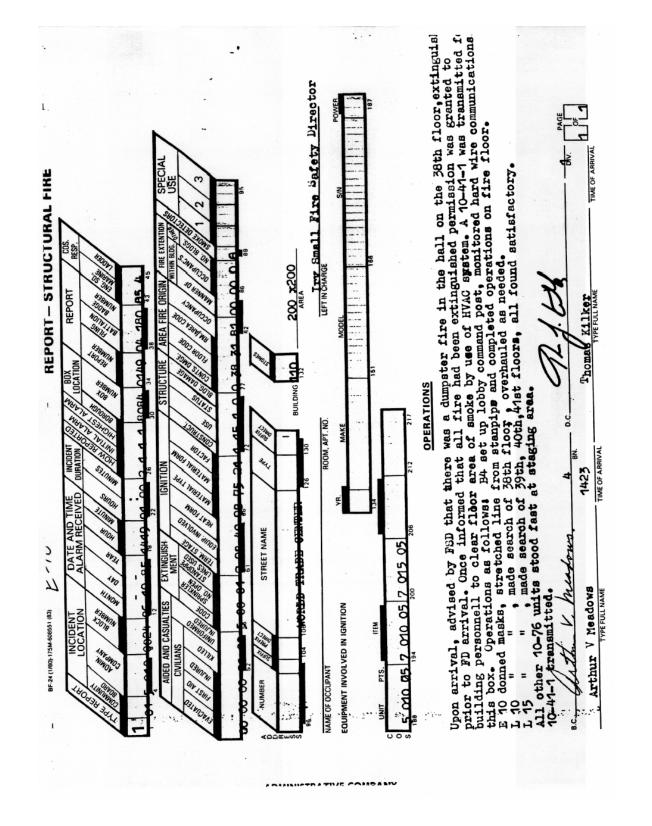


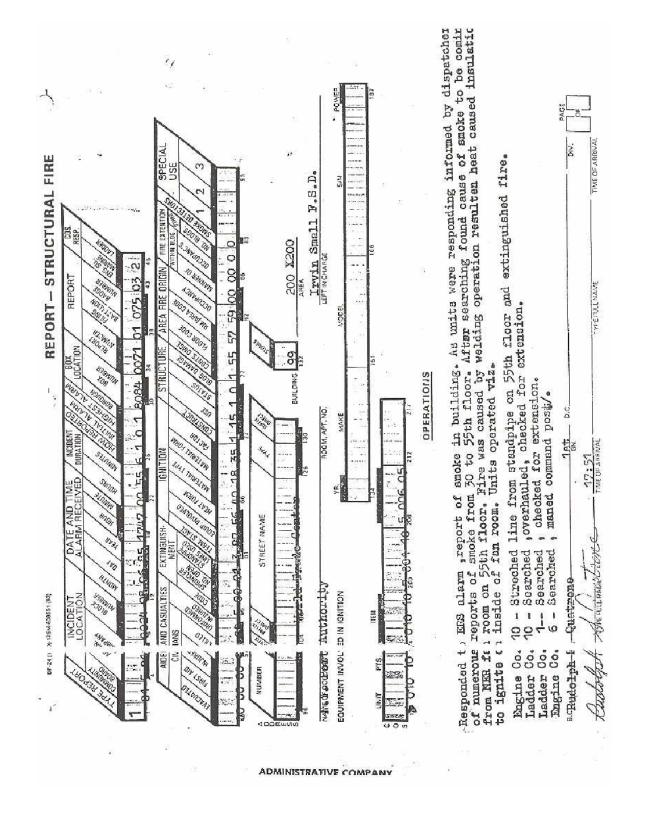


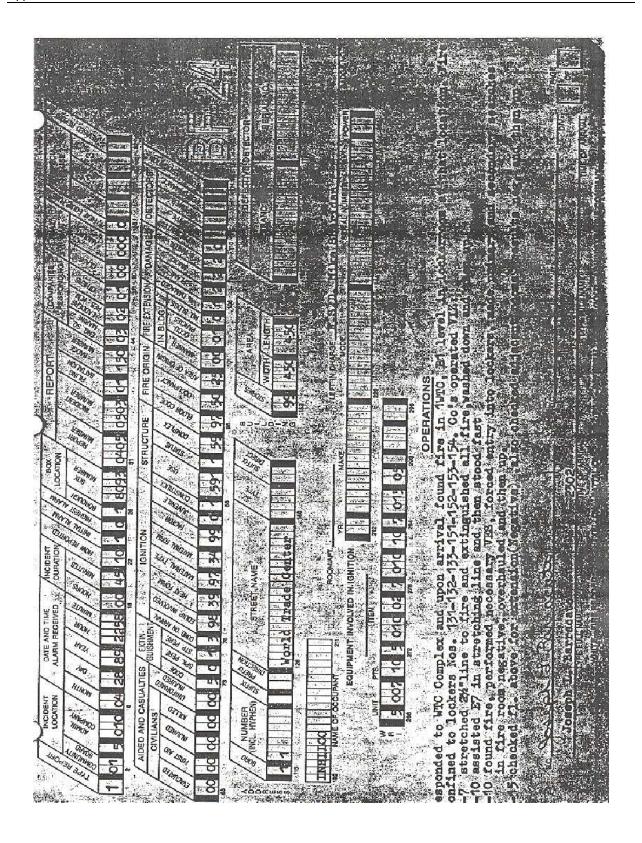


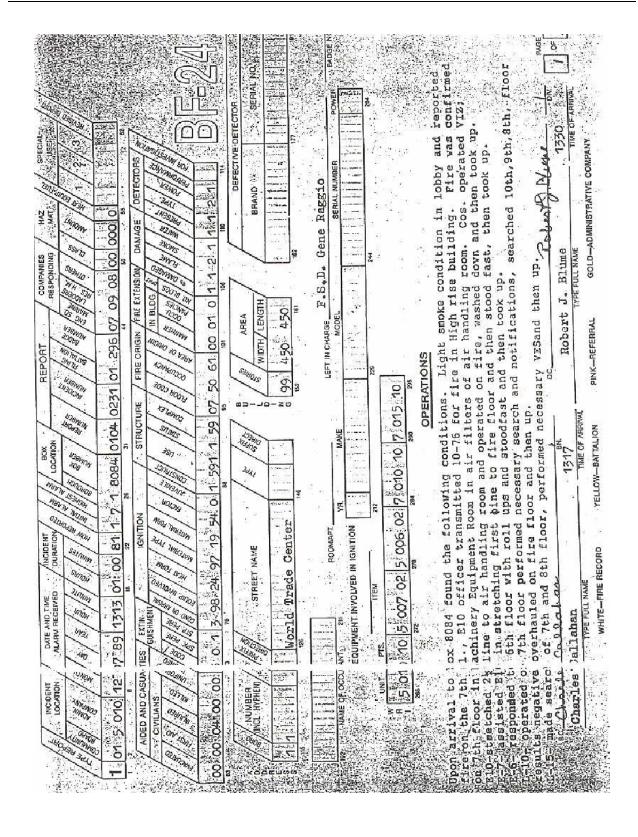


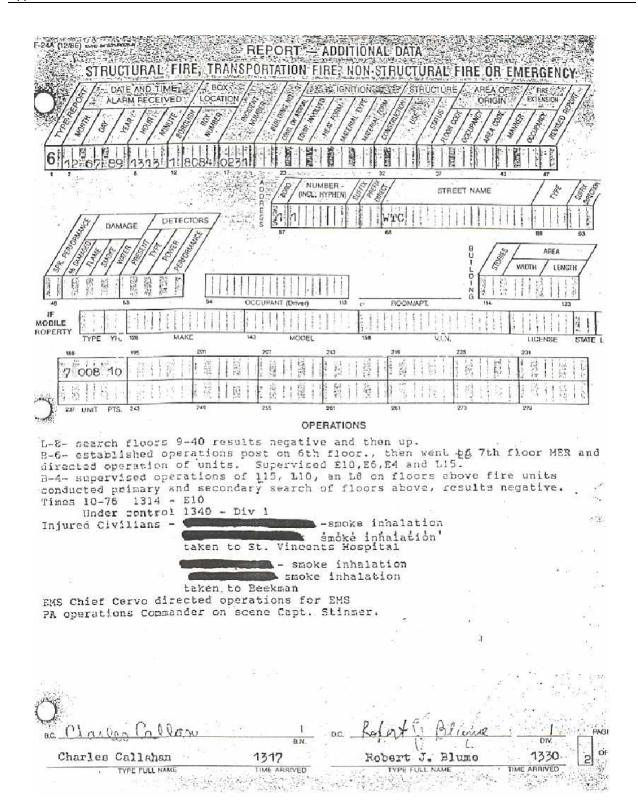


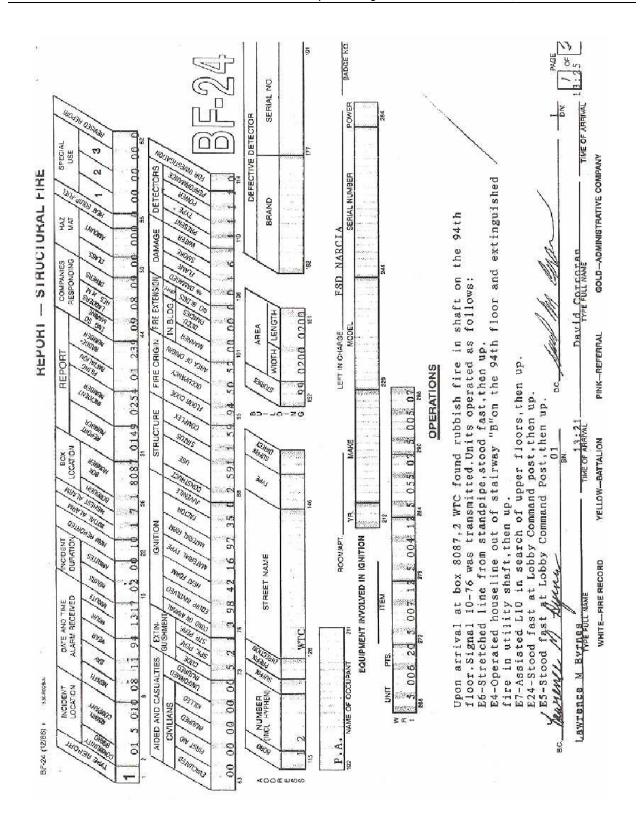


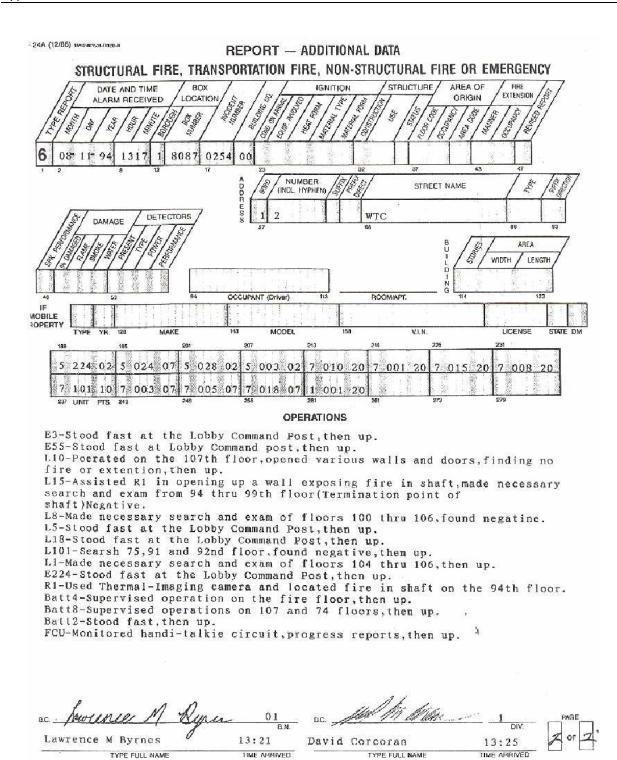


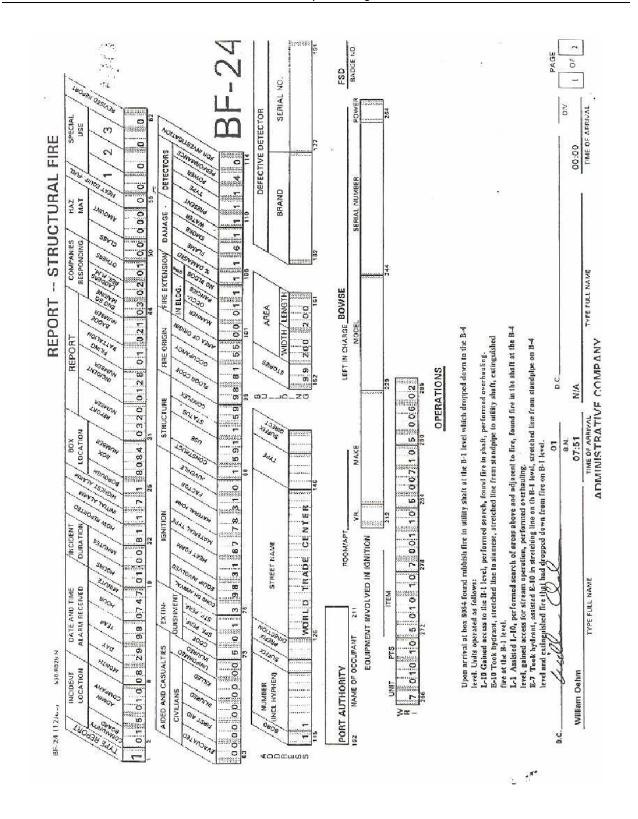


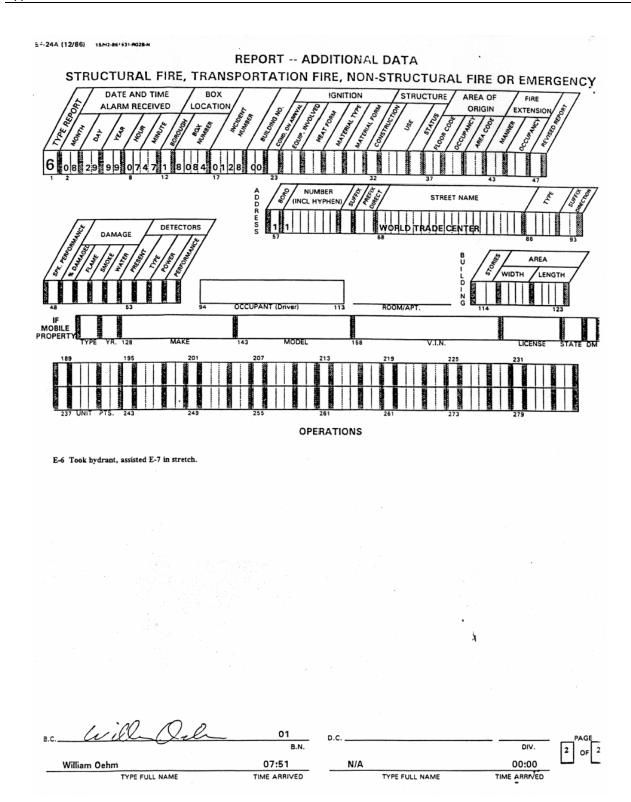








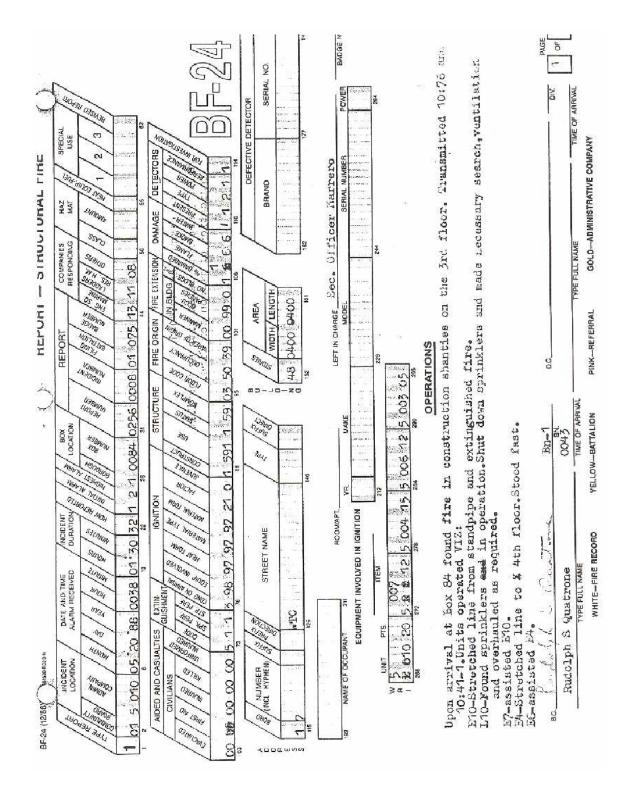


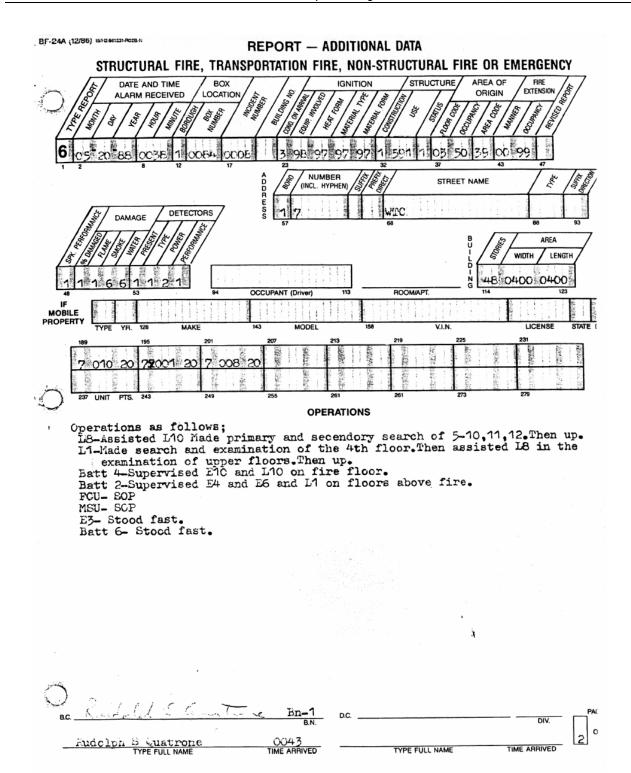


Attachment G-A.7

Significant fires occurring in WTC 7 (1)

Significant Fire	Incident Date	Fire Location	# sprinklers activated	# standpipes activated	Cause of fire	Material Ignited
1	5/20/88	Construction shanties on floor 3	Multiple, # not listed	1	Suspicious	Shanties





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Attachment G-B

PACO 2002 Report: World Trade Center General Description of All Building Systems and the Capital Program. Extracted page.

Miscellaneous Life Safety Improvements and Sprinklerization Program

12. Miscellaneous Life Safety Improvements and Sprinklerization Program

12.1 Description of the Program

The initial base building provided for Fire Standpipe (FSP) protection in the Towers and Plaza Buildings and no sprinkler system installation (except in the sub-grade Levels). In response to the enactment of Local Law 5 and other NYC Building Code Local Law enactments related to the fire protection of high rise office towers built after 1973 the Port Authority voluntarily retrofitted the WTC complex to comply with the new NYC Building Code Requirements supplemented by PA imposed life safety requirements unique to the WTC. These requirements provided tenants the option of achieving fire protection compliance by a compartmentalization or a sprinklerization option. The Scope of miscellaneous life safety and sprinkler system upgrades/improvements, other than certain fire alarm, concourse circulation and blast recovery improvements discussed elsewhere, included but was not limited to:

12.2 Scope of Fire Life Safety Improvements

Architectural Modifications - On all floors:

- Upgraded core wall construction to provide for a 2 hour rated fire separation from one side of a tower floor to the opposite side (Where core wall were already 2 hour rated, such as in elevator shafts, upgraded where not previously required).
- Installed a double acting set of rated HM fire doors in the core corridors where
 the above 2 hour rated fire separation crossed the corridor (This enabled one
 half of a typical tower floor to serve as a horizontal fire refuge for the other.)
 Doors included special magnetic hold open hardware and closures linked to
 smoke detectors in floor return air ducts.
- Restored all ceilings in corridors and lobbies affected by fire protection installations.
- Provided slab-to-slab 1hour fire rated walls to enable a maximum of 10,000 gross square foot compartmentalization on each side of the 2 hour rated fire separations.

Sprinkler System Installation

- The entire WTC complex was fully sprinklered. The Sprinkler System was installed in three basic phases. Phase 1: Sub-grade areas for the initial building construction; Phase 2: Sprinkler riser/main installation throughout 1 & 2 WTC including the sprinklerization of corridors, storage rooms, lobbies and certain tenant/PA spaces in 1976 in compliance with Local Law 5 to provide tenants with a compartmentation or sprinkler fire protection option; Phase 3: The full sprinklerization of the entire complex for all remaining places from 1983 to the 2001(including 1993 blast recovery and ongoing up-grades/improvements and replacements).
- The Tower sprinkler systems were fed in the various zones from the gravity feed fire reserve tanks located on the 20th, 41st,75th and 110th Floors through a 4" vertical sprinkler riser located in the Janitor Closet on each floor of each building in the WTC complex.

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